brother

FACSIMILE EQUIPMENT

SERVICE MANUAL

MODEL: FAX4750/5750
MFC8300/8600/8700
FAX8350P/8750P
MFC9650

© Copyright Brother 2000

All rights reserved.

No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.

Specifications are subject to change without notice.

All products and company names mentioned in this manual are trademarks or registered trademarks of their respective holders.

PREFACE

This publication is a Service Manual covering the specifications, construction, theory of operation, and maintenance of the Brother facsimile equipment. It includes information required for field troubleshooting and repair--disassembly, reassembly, and lubrication--so that service personnel will be able to understand equipment function, to rapidly repair the equipment and order any necessary spare parts.

To perform appropriate maintenance so that the facsimile equipment is always in best condition for the customer, the service personnel must adequately understand and apply this manual.

This manual is made up of six chapters and appendices.

CHAPTER I. GENERAL DESCRIPTION

CHAPTER II. INSTALLATION

CHAPTER III. THEORY OF OPERATION

CHAPTER IV. DISASSEMBLY/REASSEMBLY AND LUBRICATION

CHAPTER V. MAINTENANCE MODE

CHAPTER VI. ERROR INDICATION AND TROUBLESHOOTING

Appendix 1. EEPROM Customizing Codes

Appendix 2. Circuit Diagrams

This manual describes the models and their versions to be destined for major countries. The specifications and functions are subject to change depending upon each destination.

SAFETY INFORMATION

Laser Safety (110-120V Model only)

This printer is certified as a Class 1 laser product under the US Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted inside the printer is completely confined within the protective housings and external covers, the laser beam cannot escape from the machine during any phase of user operation.

CDRH Regulations (110-120V Model only)

The Center for Device and Radiological Health (CDRH) of the US Food and Drug Administration implemented regulations for laser products on August 2, 1976. These regulations apply to laser products manufactured from August 1, 1976. Compliance is mandatory for products marketed in the United States. The label shown below indicates compliance with the CDRH regulations and must be attached to laser products marketed in the United States.

The label for Chinese products

MANUFACTURED: JULY 1999 C
BROTHER CORP. (ASIA) LTD.
BROTHER BUJI NAN LING FACTORY
Gold Garden Industry, Nan Ling Village, Buji,
Rong Gang, Shenzhen, China.
This product complies with FDA radiation
performance standards, 21 CFR Subchapter J.

CHAPTER I.

GENERAL DESCRIPTION

CHAPTER I. GENERAL DESCRIPTION

CONTENTS

1. EQUIPMENT OUTLINE I-1

1.1 External Appearance and Weight I-1

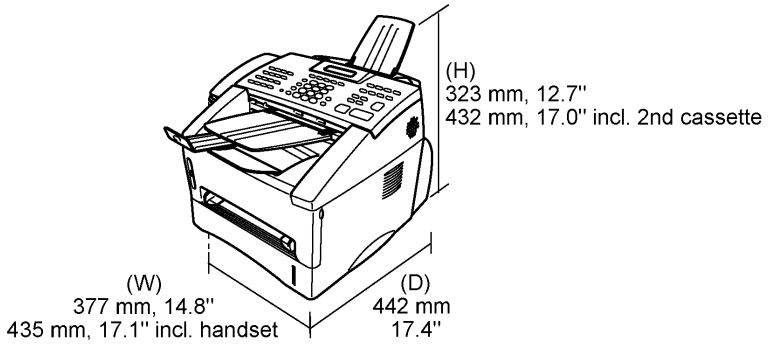
1.2 Components I-1

2. SPECIFICATIONS I-2

1. EQUIPMENT OUTLINE

1.1 External Appearance and Weight

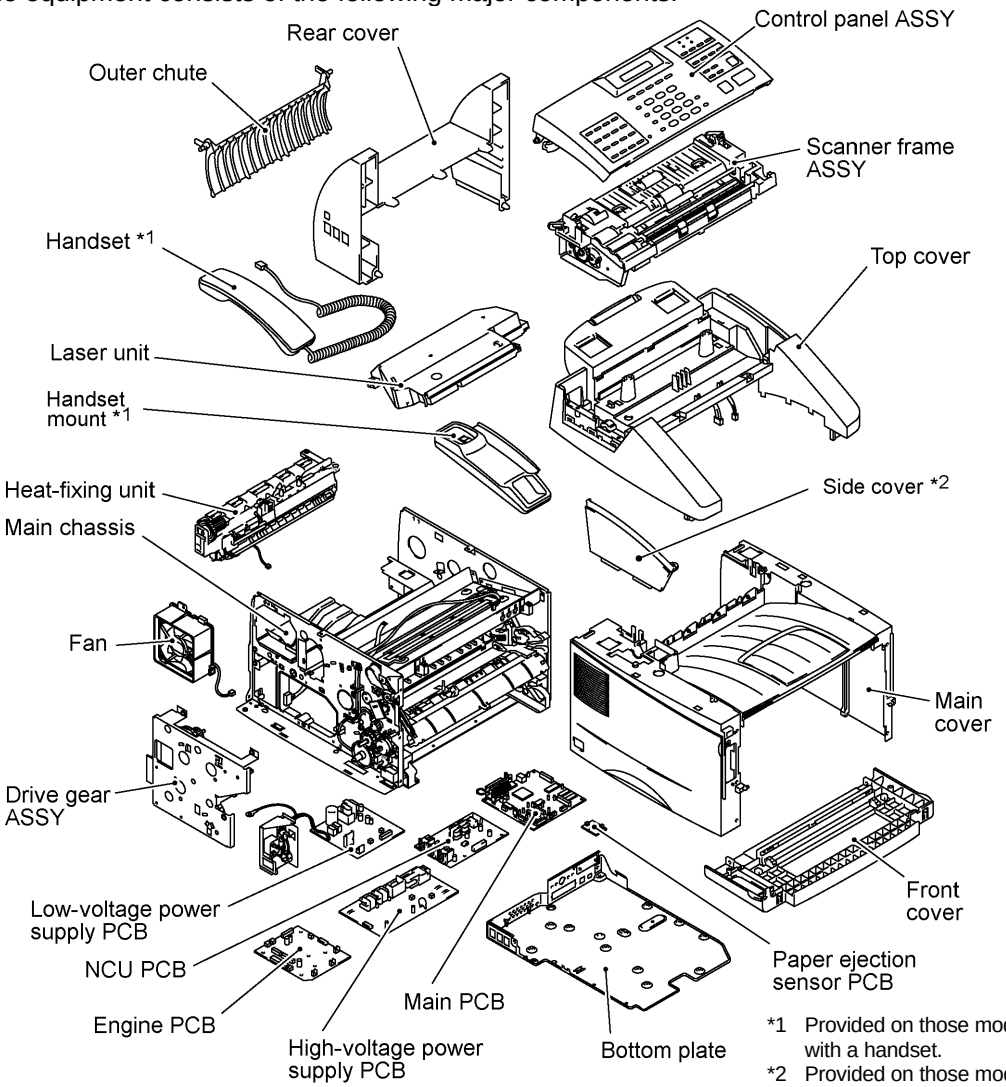
The figure below shows the equipment appearance and approximate dimensions.



		w/o 2nd cassette	w/ 2nd cassette
Weight:	Machine proper	10.5 kg	14.0 kg
	Machine (incl. drum unit & toner cartridge)	12.0 kg	15.5 kg
	In package	16.5 kg	22.0 kg

1.2 Components

The equipment consists of the following major components:



*1 Provided on those models equipped with a handset.
*2 Provided on those models without handset.

2. SPECIFICATIONS

(1/4)

Model	FAX4750	MFC8300
GENERAL		
Print Engine	Laser (ZL)	Laser (ZL)
Modem Speed (bps)	14,400 (Fax)	14,400 (Fax)
Transmission Speed (sec.)	6	6
ITU-T Group	G3	G3
Coding Method	MH/MR/MMR	MH/MR/MMR
Input/Output Width	5.8" to 8.5" x 2.75" to 8.5"	5.8" to 8.5" x 2.75" to 8.5"
ADF (pages)	30 (50 *[1])	30
LCD Size	16 chars x 2 lines	16 chars x 2 lines
On-Screen Programming	Yes	Yes
Backup Clock	Yes (1 hour)	Yes (1 hour)
Memory Capacity (MB)	4	2
Backup Memory	No	No
Optional Memory	Yes (8 & 16 MB)	Yes (8 & 16 MB)
Color	Gray 1495	Gray 1495
Standby Mode	Yes	Yes
PC-Fax Protocol Compliance	Class 2	Class 2
Simultaneous Operation	Yes	Yes
Data Modem	No	No
Energy Star Compliance (for U.S.A.)	Yes	Yes
LCD Backlight	No	No
Operating Environment Temperature Humidity	10 to 32.5 °C 20 to 80% (without condensation)	10 to 32.5 °C 20 to 80% (without condensation)
Power Source	120 VAC, 50/60Hz	120 VAC, 50/60Hz
Power Consumption (Sleep/Peak)	Less than 9W/60W/850W	Less than 9W/60W/850W
TELEPHONE		
Automatic Redial	Yes	Yes
Handset	Yes	Yes
One-Touch Dial	32 (16 x 2)	32 (16 x 2)
Speed Dial	100	100
Telephone Index	Yes	Yes
Speaker Phone	No	No
Chain Dialing	Yes	Yes
Caller ID	Yes	Yes
Call Waiting Caller ID	Yes	Yes
Distinctive Ringing	Yes	Yes
Hold/Mute Key	Yes	Yes
Power Failure Dialing	No	No
Speaker Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Ringer Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Receiver Volume	Yes (2 levels + Hearing amplify level)	Yes (2 levels + Hearing amplify level)
PBX Feature	No	No
Transfer Method	Flash	Flash
Digits of One-Touch & Speed Dial	20 digits	20 digits
Registrable Number of Characters	15 chars	15 chars

*[1] Xerox 4200 (20 lb/LTR) in normal business environments

Model	MFC8600	MFC8700
GENERAL		
Print Engine	Laser (ZL)	Laser (ZL)
Modem Speed (bps)	14,400 (Fax)	14,400 (Fax)
Transmission Speed (sec.)	6	Approx. 5
ITU-T Group	G3	G3
Coding Method	MH/MR/MMR	MH/MR/MMR/JBIG
Input/Output Width	5.8" to 8.5" x 2.75" to 8.5"	5.8" to 8.5" x 2.75" to 8.5"
ADF (pages)	30	30 (50 Conditional *[1])
LCD Size	16 chars x 2 lines	16 chars x 2 lines
On-Screen Programming	Yes	Yes
Backup Clock	Yes (1 hour)	Yes (1 hour)
Memory Capacity (MB)	4	4
Backup Memory	No	No
Optional Memory	Yes (8 & 16 MB)	Yes (8 & 16 MB)
Color	Gray 1495	Gray 1495
Standby Mode	Yes	Yes
PC-Fax Protocol Compliance	Class 2	Class 1 & 2
Simultaneous Operation	Yes	Yes
Data Modem	No	No
Energy Star Compliance (for U.S.A.)	Yes	Yes
LCD Backlight	No	No
Operating Environment Temperature	10 to 32.5 °C	10 to 32.5 °C
Humidity	20 to 80% (without condensation)	20 to 80% (without condensation)
Power Source	120 VAC, 50/60Hz	120 VAC, 50/60Hz
Power Consumption (Sleep/Peak)	Less than 9W/60W/850W	Less than 9W/60W/850W
TELEPHONE		
Automatic Redial	Yes	Yes
Handset	Yes	Yes
One-Touch Dial	32 (16 x 2)	32 (16 x 2)
Speed Dial	100	100
Telephone Index	Yes	Yes
Speaker Phone	No	No
Chain Dialing	Yes	Yes
Caller ID	Yes	Yes
Call Waiting Caller ID	Yes	Yes
Distinctive Ringing	Yes	Yes
Hold/Mute Key	Yes	Yes
Power Failure Dialing	No	No
Speaker Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Ringer Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Receiver Volume	Yes (2 levels + Hearing amplify level)	Yes (2 levels + Hearing amplify level)
PBX Feature	No	No
Transfer Method	Flash	Flash
Digits of One-Touch & Speed Dial	20 digits	20 digits
Registrable Number Of Characters	15 chars	15 chars

*[1] Xerox 4200 (20 lb/LTR) in normal business environments

Model	FAX5750	FAX8350P
GENERAL		
Print Engine	Laser (ZL)	Laser (ZL)
Modem Speed (bps)	33,600 (Fax)	14,400 (Fax)
Transmission Speed (sec.)	Approx. 2	6
ITU-T Group	Super G3	G3
Coding Method	MH/MR/MMR/JBIG	MH/MR/MMR
Input/Output Width	5.8" to 8.5" x 2.75" to 8.5"	5.8" to 8.5" x 2.75" to 8.5"
ADF (pages)	30 (50 *[1])	30 (50 *[1])
LCD Size	16 chars x 2 lines	16 chars x 2 lines
On-Screen Programming	Yes	Yes
Backup Clock	Yes (1 hour)	Yes (9 hours)
Memory Capacity (MB)	4	4 (RAM) + 2 (flash ROM)
Backup Memory	No	Yes
Optional Memory	Yes (8 & 16 MB)	Yes (2 or 4 MB: flash)
Color	Gray 1495	Gray 1495
Standby Mode	Yes	Yes
PC-Fax Protocol Compliance	Class 2	Class 2
Simultaneous Operation	Yes	Yes
Data Modem	No	No
Energy Star Compliance (for U.S.A.)	Yes	No
LCD Backlight	No	No
Operating Environment Temperature Humidity	10 to 32.5 °C 20 to 80% (without condensation)	10 to 32.5 °C 20 to 80% (without condensation)
Power Source	120 VAC, 50/60Hz	220-240 VAC, 50/60Hz
Power Consumption (Sleep/Peak)	Less than 9W/60W/850W	Less than 7W/9W/60W/850W
TELEPHONE		
Automatic Redial	Yes	Yes
Handset	Yes	No
One-Touch Dial	32 (16 x 2)	32 (16 x 2)
Speed Dial	100	100
Telephone Index	Yes	Yes
Speaker Phone	No	No
Chain Dialing	Yes	Yes
Caller ID	Yes	No
Call Waiting Caller ID	No	No
Distinctive Ringing	Yes	Yes
Hold/Mute Key	Yes	No
Power Failure Dialing	No	No
Speaker Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Ringer Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Receiver Volume	Yes (2 levels + Hearing amplify level)	N/A
PBX Feature	No	Yes
Transfer Method	Flash	Flash/Earth
Digits of One-Touch & Speed Dial	20 digits	20 digits
Registrable Number Of Characters	15 chars	15 chars

*[1] Xerox 4200 (20 lb/LTR) in normal business environments

Model	MFC9650	FAX8750P
GENERAL		
Print Engine	Laser (ZL)	Laser (ZL)
Modem Speed (bps)	14,400 (Fax)	33,600 (Fax)
Transmission Speed (sec.)	6	Approx. 2
ITU-T Group	G3	Super G3
Coding Method	MH/MR/MMR	MH/MR/MMR/JBIG
Input/Output Width	5.8" to 8.5" x 2.75" to 8.5"	5.8" to 8.5" x 2.75" to 8.5"
ADF (pages)	30 (50 *[1])	30 (50 *[1])
LCD Size	16 chars x 2 lines	16 chars x 2 lines
On-Screen Programming	Yes	Yes
Backup Clock	Yes (9 hours)	Yes (9 hours)
Memory Capacity (MB)	4 (RAM) + 2 (flash ROM)	4 (RAM) + 8 (flash ROM)
Backup Memory	Yes	Yes
Optional Memory	Yes (2 or 4 MB: flash)	N/A
Color	Gray 1495	Gray 1495
Standby Mode	Yes	Yes
PC-Fax Protocol Compliance	Class 1 & 2	Class 1 & 2
Simultaneous Operation	Yes	Yes
Data Modem	No	No
Energy Star Compliance (for U.S.A.)		
LCD Backlight	No	No
Operating Environment Temperature Humidity	10 to 32.5 °C 20 to 80% (without condensation)	10 to 32.5 °C 20 to 80% (without condensation)
Power Source	220-240 VAC, 50/60Hz	220-240 VAC, 50/60Hz
Power Consumption (Sleep/Peak)	Less than 7W/9W/60W/850W	Less than 7W/9W/60W/850W
TELEPHONE		
Automatic Redial	Yes	Yes
Handset	No	No
One-Touch Dial	32 (16 x 2)	32 (16 x 2)
Speed Dial	100	100
Telephone Index	Yes	Yes
Speaker Phone	No	No
Chain Dialing	Yes	Yes
Caller ID	No	No
Call Waiting Caller ID	No	No
Distinctive Ringing	Yes	Yes
Hold/Mute Key	No	No
Power Failure Dialing	No	No
Speaker Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Ringer Volume	Yes (3 levels + OFF)	Yes (3 levels + OFF)
Receiver Volume	N/A	N/A
PBX Feature	Yes	Yes
Transfer Method	Flash/Earth	Flash/Earth
Digits of One-Touch & Speed Dial	20 digits	20 digits
Registrable Number Of Characters	15 chars	15 chars

*[1] Xerox 4200 (20 lb/LTR) in normal business environments

Model	FAX4750	MFC8300
FAX		
Internet FAX	N/A	N/A
Easy Receive/Fax Detect	Yes	Yes
Fax/Tel Switch	Yes	Yes
Super Fine	Yes (TX & RX)	Yes (TX & RX)
300 dpi Transmission	No	No
Gray Scale	64	64
Contrast	Yes (Auto/S.Light/S.Dark)	Yes (Auto/S.Light/S.Dark)
Smoothing	Yes	Yes
Call Reservation Over Auto TX	Yes	Yes
Password Check	No	No
Enhanced Remote Activation	Yes	Yes
Multi-Resolution Transmission	Yes	Yes
Multi Transmission	No	No
Next-Fax Reservation	Yes (Dual access)	Yes (Dual access)
Delayed Timer	Yes (Up to 50 timers or 50 jobs)	Yes (Up to 50 timers or 50 jobs)
Polling	Yes (Std/Seq)	Yes (Std/Seq)
Quick Scan (Memory Transmission)	Approx. 2 sec/page (A4, std. resolution)	Approx. 2 sec/page (A4, std. resolution)
Broadcasting	Yes (182 locations)	Yes (182 locations)
Batch Transmission	Yes	Yes
Auto Reduction	Yes	Yes
Out-of-Paper Reception (Brother #1 Chart)	Up to 270 pages	Up to 90 pages
Dual Access	Yes	Yes
ECM (Error Correction Mode)	Yes	Yes
ITU SUB Addressing	No	No
Group Dial	Yes (6)	Yes (6)
Re-send After Receive Error Signal	No	No
Confidential	No	No
Station ID	1 (20 digits/20 characters)	1 (20 digits/20 characters)
Off-Hook Alarm	No	No
Remote Maintenance	Yes	Yes
Call Reservation Over Manual TX	Yes	Yes
RX Mode Indication	LED	LED
Resolution Indication	LED	LED
LIST REPORT		
Activity Report/Journal Report	Yes (up to 50)	Yes (up to 50)
Transmission Verification Report	Yes	Yes
Coverpage	Yes (Super)	Yes (Super)
Help List	Yes	Yes
Callback Message	Yes	Yes
Caller ID List	Yes	Yes
INTERFACE		
External TAD Interface	Yes	Yes
Missing Link/PC Interface	No	No
Host Interface	Yes (Parallel)	Yes (Auto switching : Parallel/USB*[2])
LAN Interface	No	No

*[2] USB for Windows98 only

Model	MFC8600	MFC8700
FAX		
Internet FAX	N/A	Available with optional LAN board
Easy Receive/Fax Detect	Yes	Yes
Fax/Tel Switch	Yes	Yes
Super Fine	Yes (TX & RX)	Yes (TX & RX)
300 dpi Transmission	No	No
Gray Scale	64	64
Contrast	Yes (Auto/S.Light/S.Dark)	Yes (Auto/S.Light/S.Dark)
Smoothing	Yes	Yes
Call Reservation Over Auto TX	Yes	Yes
Password Check	No	No
Enhanced Remote Activation	Yes	Yes
Multi-Resolution Transmission	Yes	Yes
Multi Transmission	No	No
Next-Fax Reservation	Yes (Dual access)	Yes (Dual access)
Delayed Timer	Yes (Up to 50 timers or 50 jobs)	Yes (Up to 50 timers or 50 jobs)
Polling	Yes (Std/Seq)	Yes (Std/Seq)
Quick Scan (Memory Transmission)	Approx. 2 sec/page (A4, std. resolution)	Approx. 2 sec/page (A4, std. resolution)
Broadcasting	Yes (182 locations)	Yes (182 locations)
Batch Transmission	Yes	Yes
Auto Reduction	Yes	Yes
Out-of-Paper Reception (Brother #1 Chart)	Up to 270 pages	Up to 310 pages
Dual Access	Yes	Yes
ECM (Error Correction Mode)	Yes	Yes
ITU SUB Addressing	No	No
Group Dial	Yes (6)	Yes (6)
Re-send After Receive Error Signal	No	No
Confidential	No	No
Station ID	1 (20 digits/20 characters)	1 (20 digits/20 characters)
Off-Hook Alarm	No	No
Remote Maintenance	Yes	Yes
Call Reservation Over Manual TX	Yes	Yes
RX Mode Indication	LED	LED
Resolution Indication	LED	LED
LIST REPORT		
Activity Report/Journal Report	Yes (up to 50)	Yes (up to 50)
Transmission Verification Report	Yes	Yes
Coverpage	Yes (Super)	Yes (Super)
Help List	Yes	Yes
Call Back Message	Yes	Yes
Caller ID List	Yes	Yes
INTERFACE		
External TAD Interface	Yes	Yes
Missing Link/PC Interface	No	No
Host Interface	Yes (Auto switching : Parallel/USB*2)	Yes (Auto switching : Parallel/USB*2)
LAN Interface	No	Available with optional LAN board (10-BaseT)

*2 USB for Windows98 only

Model	FAX5750	FAX8350P
FAX		
Internet FAX	Available with optional LAN board	N/A
Easy Receive/Fax Detect	Yes	Yes
Fax/Tel Switch	Yes	Yes
Super Fine	Yes (TX & RX)	Yes
300 dpi Transmission	No	No
Gray Scale	64	64
Contrast	Yes (Auto/S.Light/S.Dark)	Yes (Auto/Light/Dark)
Smoothing	Yes	Yes
Call Reservation Over Auto TX	Yes	Yes
Password Check	No	No
Enhanced Remote Activation	Yes	Yes
Multi-Resolution Transmission	Yes	Yes
Multi Transmission	No	No
Next-Fax Reservation	Yes (Dual access)	Yes (Dual access)
Delayed Timer	Yes (Up to 50 timers or 50 jobs)	Yes (Up to 50 timers or 50 jobs)
Polling	Yes (Std/Seq)	Yes (Std(+Seq)/Sec/Dil)
Quick Scan (Memory Transmission)	Approx. 2 sec/page (A4, std. resolution)	Approx. 2 sec/page (A4, std. resolution)
Broadcasting	Yes (182 locations)	Yes (182 locations)
Batch Transmission	Yes	Yes
Auto Reduction	Yes	Yes
Out-of-Paper Reception (Brother #1 Chart) (ITU-T Chart)	Up to 310 pages -	- Up to 130 pages
Dual Access	Yes	Yes
ECM (Error Correction Mode)	Yes	Yes
ITU SUB Addressing	No	No
Group Dial	Yes (6)	Yes (6)
Re-send After Receive Error Signal	No	No
Confidential	No	No
Station ID	1 (20 digits/15 characters)	1 (20 digits/20 characters)
Off-Hook Alarm	No	No
Remote Maintenance	Yes	Yes
Call Reservation Over Manual TX	Yes	Yes
RX Mode Indication	LED	LED
Resolution Indication	LED	LED
LIST REPORT		
Activity Report/Journal Report	Yes (up to 50)	Yes (up to 50)
Transmission Verification Report	Yes	Yes
Coverpage	Yes (Super)	Yes (Super)
Help List	Yes	Yes
Call Back Message	Yes	Yes
Caller ID List	Yes	No
INTERFACE		
External TAD Interface	Yes	Yes
Missing Link/PC Interface	No	No
Host Interface	Yes (Parallel)	No*[3]
LAN Interface	Available with optional LAN board (10-BaseT)	No

*[3] There is a parallel I/F behind the cover.

Model	MFC9650	FAX8750P
FAX		
Internet FAX	Available with optional LAN board	Available with optional LAN board
Easy Receive/Fax Detect	Yes	Yes
Fax/Tel Switch	Yes	Yes
Super Fine	Yes	Yes
300 dpi Transmission	No	No
Gray Scale	64	64
Contrast	Yes (Auto/Light/Dark)	Yes (Auto/Light/Dark)
Smoothing	Yes	Yes
Call Reservation Over Auto TX	Yes	Yes
Password Check	No	No
Enhanced Remote Activation	Yes	Yes
Multi-Resolution Transmission	Yes	Yes
Multi Transmission	No	No
Next-Fax Reservation	Yes (Dual access)	Yes (Dual access)
Delayed Timer	Yes (Up to 50 timers or 50 jobs)	Yes (Up to 50 timers or 50 jobs)
Polling	Yes (Std(+Seq)/Sec/Dil)	Yes (Std(+Seq)/Sec/Dil)
Quick Scan (Memory Transmission)	Approx. 2 sec/page (A4, std. resolution)	Approx. 2 sec/page (A4, std. resolution)
Broadcasting	Yes (182 locations)	Yes (182 locations)
Batch Transmission	Yes	Yes
Auto Reduction	Yes	Yes
Out-of-Paper Reception (ITU-T Chart)	Up to 130 pages	Up to 460 pages
Dual Access	Yes	Yes
ECM (Error Correction Mode)	Yes	Yes
ITU SUB Addressing	Yes (Wordcraft: MFL Pro:Class1 only)	No
Group Dial	Yes (6)	Yes (6)
Re-send After Receive Error Signal	No	No
Confidential	No	No
Station ID	1 (20 digits/20 characters)	1 (20 digits/20 characters)
Off-Hook Alarm	No	No
Remote Maintenance	Yes	Yes
Call Reservation Over Manual TX	Yes	Yes
RX Mode Indication	LED	LED
Resolution Indication	LED	LED
LIST REPORT		
Activity Report/Journal Report	Yes (up to 50)	Yes (up to 50)
Transmission Verification Report	Yes	Yes
Coverpage	Yes (Super)	Yes (Super)
Help List	Yes	Yes
Call Back Message	Yes	Yes
Caller ID List	No	No
INTERFACE		
External TAD Interface	Yes	Yes
Missing Link/PC Interface	No	No
Host Interface	Yes (Auto switching : Parallel/USB*2)	Yes (Auto switching : Parallel/USB*2)
LAN Interface	Available with option (LAN Board)	Available with option (LAN Board)

*2 USB for Windows98 only

Model	FAX4750	MFC8300
PRINTER	Available with option or download from Web Site	Yes
Color/Mono	Mono	Mono
Engine Type	Laser (ZL)	Laser (ZL)
Resolution (dpi)	600 x 600	600 x 600
Speed (ppm)	12	12
Paper Capacity (sheets)	250	250
Additional Paper Capacity (sheets)	250 (User option)	N/A
Output Paper Capacity (sheets)	150	150
Standard Print Language	Windows GDI (600 x 600)	Windows GDI (600 x 600)
Emulation	No	PCL4
Resident Fonts	No	24 bitmap (PCL4 Comp.)
Fonts Disk Based	No	Yes (35 True type)
Paper Handling Size	LTR, LGL, A4, B5, A5, EXE	LTR, LGL, A4, B5, A5, EXE
Manual Feed Slot	Custom size (2.75 x 5 to 8.5 x 14) Envelop (DL/C5/CM10/Mona)	Custom size (2.75 x 5 to 8.5 x 14) Envelop (DL/C5/CM10/Mona)
Other Paper Type	OHP, envelopes, labels, organizer	OHP, envelopes, labels, organizer
Sheet Weight (Paper Cassette) (Manual Slot)	64 to 105 g/m^2 (17 to 28 lb) 64 to 157 g/m^2 (17 to 43 lb)	64 to 105 g/m^2 (17 to 28 lb) 64 to 157 g/m^2 (17 to 43 lb)
Printer Driver	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program
Utility Software	No	Yes (Remote printer console for PCL4)
Toner Life (High Yield : TN-430) (Standard Yield : TN-460)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)
Drum Life (DR400)	Up to 20,000 pages	Up to 20,000 pages
Interface Type	Parallel	Parallel & USB*[2]
Bundled Cable	No	Yes (Parallel)
COPY		
Color	No	No
Speed (ppm)	Up to 12	Up to 12
Multi Copy (Stack)	Up to 99	Up to 99
Multi Copy (Sort)	Yes	Yes
Reduction/Enlargement	50 to 200% in 1% increments	50 to 200% in 1% increments
Resolution (dpi)	300 x 600	300 x 600
SCANNER	Available with Option	Available with Option
Color/Mono	Mono	Mono
Resolution (dpi)	1,200 x 1,200 (Int.), 300 x 600 (Opt.)	1,200 x 1,200 (Int.), 300 x 600 (Opt.)
Gray Scale	256	256
TWAIN Compliant	Yes	Yes
Formats (Import)	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF
Formats (Export)	TIFF/BMP/MAX/PDF	TIFF/BMP/MAX/PDF
OCR	Yes (ScanSoft TextBridge)	Yes (ScanSoft TextBridge)
MESSAGE CENTER/MESSAGE MANAGER	No	No
ICM Recording Time	N/A	N/A
Page Memory	N/A	N/A
OGM (MC/MC Pro/Paging)	N/A	N/A
TAD Type	N/A	N/A
Memo/Recording Conversation	N/A	N/A
Toll Saver	N/A	N/A

*[2] USB for Windows98 only

Model	MFC8600	MFC8700
PRINTER	Yes	Yes
Color/Mono	Mono	Mono
Engine Type	Laser (ZL)	Laser (ZL)
Resolution (dpi)	600 x 600	600 x 600
Speed (ppm)	12	12
Paper Capacity (sheets)	250	500 (250 + 250)
Additional Paper Capacity (sheets)	250 (User option)	N/A
Output Paper Capacity (sheets)	150	150
Standard Print Language	Windows GDI (600 x 600)	Windows GDI (600 x 600)
Emulation	PCL4	PCL4
Resident Fonts	24 bitmap (PCL4 Comp.)	24 bitmap (PCL4 Comp.)
Fonts Disk Based	Yes (35 TrueType)	Yes (35 TrueType)
Paper Handling Size	LTR, LGL, A4, B5, A5, EXE	LTR, LGL, A4, B5, A5, EXE
Manual Feed Slot	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)
Other Paper Type	OHP, envelopes, labels, organizer	OHP, envelopes, labels, organizer
Sheet Weight (Paper Cassette) (Manual Slot)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)
Printer Driver	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program
Utility Software	Yes (Remote printer console for PCL4)	Yes (Remote printer console for PCL4)
Toner Life (High Yield : TN-430) (Standard Yield : TN-460)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)
Drum Life (DR400)	Up to 20,000 pages	Up to 20,000 pages
Interface Type	Parallel & USB*2	Parallel & USB*2
Bundled Cable	Yes (Parallel)	Yes (Parallel)
COPY		
Color	No	No
Speed (ppm)	Up to 12	Up to 12
Multi Copy (Stack)	Up to 99	Up to 99
Multi Copy (Sort)	Yes	Yes
Reduction/Enlargement	50 to 200% in 1% increments	50 to 200% in 1% increments
Resolution (dpi)	300 x 600	300 x 600
SCANNER	Yes	Yes
Color/Mono	Mono	Mono
Resolution (dpi)	1,200 x 1,200 (Int.)/300 x 600 (Opt.)	1,200 x 1,200 (Int.)/300 x 600 (Opt.)
Gray Scale	256	256
TWAIN Compliant	Yes	Yes
Formats (Import)	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF
Formats (Export)	TIFF/BMP/MAX/PDF	TIFF/BMP/MAX/PDF
OCR	Yes (ScanSoft TextBridge)	Yes (ScanSoft TextBridge)
MESSAGE CENTER/MESSAGE MANAGER	No	No
ICM Recording Time	N/A	N/A
Page Memory	N/A	N/A
OGM (MC/MC Pro/Paging)	N/A	N/A
TAD Type	N/A	N/A
Memo/Recording Conversation	N/A	N/A
Toll Saver	N/A	N/A

*2 USB for Windows98 only

Model	FAX5750	FAX8350P
PRINTER	Available with option or download from Web Site	N/A
Color/Mono	Mono	Mono
Engine Type	Laser (ZL)	Laser (ZL)
Resolution (dpi)	600 x 600	600 x 600
Speed (ppm)	12	12
Paper Capacity (sheets)	500 (250+250)	250
Additional Paper Capacity (sheets)	N/A	250 (User option)
Output Paper Capacity (sheets)	150	150
Standard Print Language	Windows GDI (600 x 600)	Windows GDI (600 x 600)
Emulation	No	No
Resident Fonts	No	No
Fonts Disk Based	No	No
Paper Handling Size	LTR, LGL, A4, B5, A5, EXE	LTR, A4, B5, A5, EXE
Manual Feed Slot	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)
Other Paper Type	OHP, envelopes, labels, organizer	OHP, envelopes, labels, organizer
Sheet Weight (Paper Cassette) (Manual Slot)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)
Printer Driver	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program	N/A
Utility Software	No	No
Toner Life (High Yield : TN-430) (Standard Yield : TN-460)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)
Drum Life (DR400)	Up to 20,000 pages	Up to 20,000 pages
Interface Type	Parallel	---*3
Bundled Cable	No	No
COPY		
Color	No	No
Speed (ppm)	Up to 12	Up to 12
Multi Copy (Stack)	Up to 99	Up to 99
Multi Copy (Sort)	Yes	Yes
Reduction/Enlargement	50 to 200% in 1% increments	50 to 200% in 1% increments
Resolution (dpi)	300 x 600	300 x 600
SCANNER	Available with option	N/A
Color/Mono	Mono	---
Resolution (dpi)	1,200 x 1,200 (Int.)/300 x 600 (Opt.)	---
Gray Scale	256	---
TWAIN Compliant	Yes	---
Formats (Import)	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF	---
Formats (Export)	TIFF/BMP/MAX/PDF	---
OCR	Yes (ScanSoft TextBridge)	---
MESSAGE CENTER/MESSAGE MANAGER	No	N/A
ICM Recording Time	N/A	N/A
Page Memory	N/A	N/A
OGM (MC/MC Pro/Paging)	N/A	N/A
TAD Type	N/A	N/A
Memo/Recording Conversation	N/A	N/A
Toll Saver	N/A	N/A

*3 There is a parallel I/F behind the cover.

Model	MFC9650	FAX8750P
PRINTER	Yes	Yes
Color/Mono	Mono	Mono
Engine Type	Laser (ZL)	Laser (ZL)
Resolution (dpi)	600 x 600	600 x 600
Speed (ppm)	12	12
Paper Capacity (sheets)	250	250
Additional Paper Capacity (sheets)	250 (User option)	250 (User option)
Output Paper Capacity (sheets)	150	150
Standard Print Language	Windows GDI (600 x 600)	Windows GDI (600 x 600)
Emulation	PCL4	PCL4
Resident Fonts	24 bitmap (PCL4 Comp.)	24 bitmap (PCL4 Comp.)
Fonts Disk Based	Yes (35 True type)	Yes (35 True type)
Paper Handling Size	LTR, A4, B5, A5, EXE	LTR, A4, B5, A5, EXE
Manual Feed Slot	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)	Custom Size (2.75x5 to 8.5x14) Envelop (DL/C5/CM10/Mona)
Other Paper Type	OHP, envelopes, labels, organizer	OHP, envelopes, labels, organizer
Sheet Weight (Paper Cassette) (Manual Slot)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)	64 to 105 g/m2 (17 to 28 lb) 64 to 157 g/m2 (17 to 43 lb)
Printer Driver	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program	Windows3.1x, 95/98 and NT4.0 Driver with Auto Installer Program
Utility Software	Yes (Remote printer console for PCL4)	No
Toner Life (High Yield : TN-430) (Standard Yield : TN-460)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)	6,000 pages (A4, @5%) 3,000 pages (A4, @5%)
Drum Life (DR400)	Up to 20,000 pages	Up to 20,000 pages
Interface Type	Parallel & USB*2	Parallel & USB*2
Bundled Cable	No (up to country)	No
COPY		
Color	No	No
Speed (ppm)	Up to 12	Up to 12
Multi Copy (Stack)	Up to 99	Up to 99
Multi Copy (Sort)	Yes	Yes
Reduction/Enlargement	50 to 200% in 1% increments	50 to 200% in 1% increments
Resolution (dpi)	300 x 600	300 x 600
SCANNER	Yes	Available with option
Color/Mono	Mono	Mono
Resolution (dpi)	1,200 x 1,200 (Int.)/300 x 600 (Opt.)	1,200 x 1,200 (Int.)/300 x 600 (Opt.)
Gray Scale	256	256
TWAIN Compliant	Yes	Yes
Formats (Import)	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF	TIFF/BMP/PCX/DCX/BTF/BTX/MAX/PDF
Formats (Export)	TIFF/BMP/MAX/PDF	TIFF/BMP/MAX/PDF
OCR	Yes (ScanSoft TextBridge)	Yes (ScanSoft TextBridge)
MESSAGE CENTER/MESSAGE MANAGER	N/A	N/A
ICM Recording Time	N/A	N/A
Page Memory	N/A	N/A
OGM (MC/MC Pro/Paging)	N/A	N/A
TAD Type	N/A	N/A
Memo/Recording Conversation	N/A	N/A
Toll Saver	N/A	N/A

*2 USB for Windows98 only

Model	FAX4750	MFC8300
Fax Forwarding	Yes	Yes
Fax Retrieval	Yes	Yes
Paging	Yes	Yes
Remote Access	Yes	Yes
MESSAGE CENTER Pro/MESSAGE MANAGER Pro	No	No
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
MESSAGE CENTER (PC MC)	No	No
Fax Forwarding	N/A	N/A
Paging	N/A	N/A
ICM Recording Time	N/A	N/A
OGM MC/MC Pro/Paging	N/A	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
VIDEO CAPTURE	No	No
Video Capture	N/A	N/A
Video Print	N/A	N/A
Video Format	N/A	N/A
BUNDLED SOFTWARE		
For Windows		
Printer Driver (Brother)	Available with option	Yes
Viewer (ScanSoft)	Available with option	Available with option
TWAIN (Brother)	Available with option	Available with option
PC Fax (SMSI)*[3]	Available with option	Available with option
For iMAC		
Printer Driver (Brother)	N/A	Yes
Viewer (InfoWAVE)	N/A	N/A
TWAIN (TII)	N/A	N/A
PC Fax (SMSI or InfoWAVE)	N/A	N/A

*[3] The parallel interface only works.

Model	MFC8600	MFC8700
Fax Forwarding	Yes	Yes
Fax Retrieval	Yes	Yes
Paging	Yes	Yes
Remote Access	Yes	Yes
MESSAGE CENTER Pro/MESSAGE MANAGER Pro	No	No
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
MESSAGE CENTER (PC MC)	No	No
Fax Forwarding	N/A	N/A
Paging	N/A	N/A
ICM Recording Time	N/A	N/A
OGM MC/MC Pro/Paging	N/A	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
VIDEO CAPTURE	Yes	Yes
Video Capture	Yes (Color)	Yes (Color)
Video Print	Yes (Mono)	Yes (Mono)
Video Format	NTSC	NTSC
BUNDLED SOFTWARE		
For Windows		
Printer Driver (Brother)	Yes	Yes
Viewer (ScanSoft)	Yes	Yes
TWAIN (Brother)	Yes	Yes
PC Fax (SMSI)*[3]	Yes	Yes
For iMAC		
Printer Driver (Brother)	Yes	Yes
Viewer (InfoWAVE)	N/A	N/A
TWAIN (TII)	Yes	Yes
PC Fax (SMSI or InfoWAVE)	N/A	N/A

*[3] The parallel interface only works.

Model	FAX5750	FAX8350P
Fax Forwarding	Yes	Yes
Fax Retrieval	Yes	Yes
Paging	Yes	N/A
Remote Access	Yes	N/A
MESSAGE CENTER Pro/MESSAGE MANAGER Pro	No	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
MESSAGE CENTER (PC MC)	No	N/A
Fax Forwarding	N/A	N/A
Paging	N/A	N/A
ICM Recording Time	N/A	N/A
OGM MC/MC Pro/Paging	N/A	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
VIDEO CAPTURE	No	N/A
Video Capture	N/A	N/A
Video Print	N/A	N/A
Video Format	N/A	N/A
BUNDLED SOFTWARE		
For Windows		
Printer Driver (Brother)	Available with option	N/A
Viewer (ScanSoft)	Available with option	N/A
TWAIN (Brother)	Available with option	N/A
PC Fax (SMSI)*3	Available with option	N/A
For iMAC		
Printer Driver (Brother)	Available with option	N/A
Viewer (InfoWAVE)	N/A	N/A
TWAIN (TII)	Available with option	N/A
PC Fax (SMSI or InfoWAVE)	N/A	N/A

*3 The parallel interface only works.

Model	MFC9650	FAX8750P
Fax Forwarding	Yes	Yes
Fax Retrieval	Yes	Yes
Paging	N/A	N/A
Remote Access	N/A	N/A
MESSAGE CENTER Pro/MESSAGE MANAGER Pro	N/A	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
MESSAGE CENTER (PC MC)	N/A	N/A
Fax Forwarding	N/A	N/A
Paging	N/A	N/A
ICM Recording Time	N/A	N/A
OGM MC/MC Pro/Paging	N/A	N/A
Fax & Voice Mail Box	N/A	N/A
Fax- & Voice-on-Demand	N/A	N/A
VIDEO CAPTURE	N/A	N/A
Video Capture	N/A	N/A
Video Print	N/A	N/A
Video Format	N/A	N/A
BUNDLED SOFTWARE		
For Windows		
Printer Driver (Brother)	Yes (Wordcraft)	Available with option
Viewer (ScanSoft)	Yes (Wordcraft)	Available with option
TWAIN (Brother)	Yes (Brother)	Yes (Brother)
PC Fax (SMSI)*[3]	Yes (Brother)	Available with option
For iMAC		
Printer Driver (Brother)	N/A	N/A
Viewer (InfoWAVE)	N/A	N/A
TWAIN (TII)	N/A	N/A
PC Fax (SMSI or InfoWAVE)	N/A	N/A

*[3] The parallel interface only works.

CHAPTER II.

INSTALLATION

CHAPTER II. INSTALLATION

CONTENTS

1. INSTALLING THE UPDATE DATA TO THE FACSIMILE EQUIPMENT II-1

1. INSTALLING THE UPDATE DATA TO THE FACSIMILE EQUIPMENT

If the program version is updated or the main PCB is replaced, install the update program onto the flash ROM of the main PCB.

The program installation requires a PC/AT-compatible computer (which is capable of running MS-DOS or its compatible OS).

Connecting the facsimile equipment to your computer

(1) Make sure that the equipment's power cord is unplugged from a wall socket.

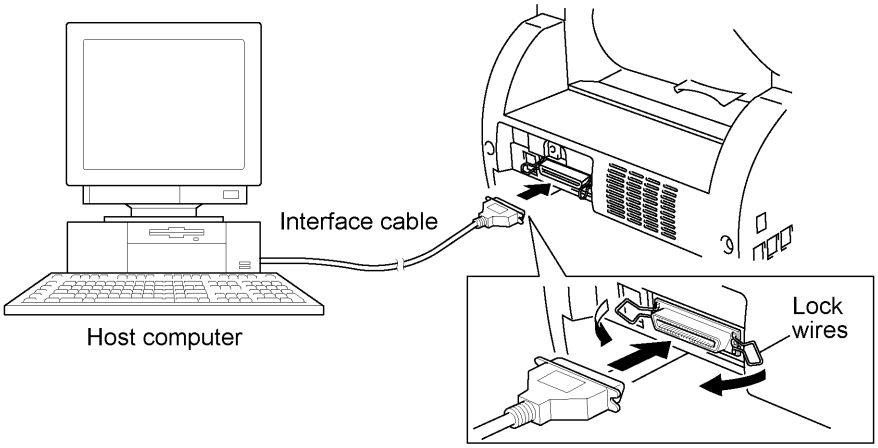
(2) Make sure that your computer is powered off.

(3) Connect the interface cable to the parallel interface port on the back of the equipment and secure it with the lock wires.

(4) Connect the other end of the interface cable to the printer port of your computer and secure it with the two screws.

(5) Power on your computer.

(6) Plug the equipment's power cord into a wall socket.



Installing the update data onto the flash ROM of the facsimile equipment

NOTE: The following is an installation procedure example on a PC that is running Windows 95/98.

(1) Copy the update data and transfer utility onto the desired directory of the hard disk.
e.g., C:\UPDATE

(2) Click the Start button, point to Programs, and then click MS-DOS Prompt to open an MS-DOS window.

(3) Type the drive letter where the update data and transfer utility are located. In the above example, type C:\ from the command line and press the **ENTER** key.

Then type CD UPDATE and press the **ENTER** key.

(4) Check that your computer is connected with the facsimile equipment correctly.

(5) To start the transfer utility transmitting the update data to the flash ROM of the facsimile equipment, type the following:

`ICEN` *`filename`* `/b`

Then press the **ENTER** key.

During downloading, the equipment beeps *intermittently*.

Upon completion of the downloading, the equipment beeps *continuously*.

NOTE: If the facsimile equipment cannot return to the standby state after completion of downloading, turn the power off and on.

CHAPTER III.

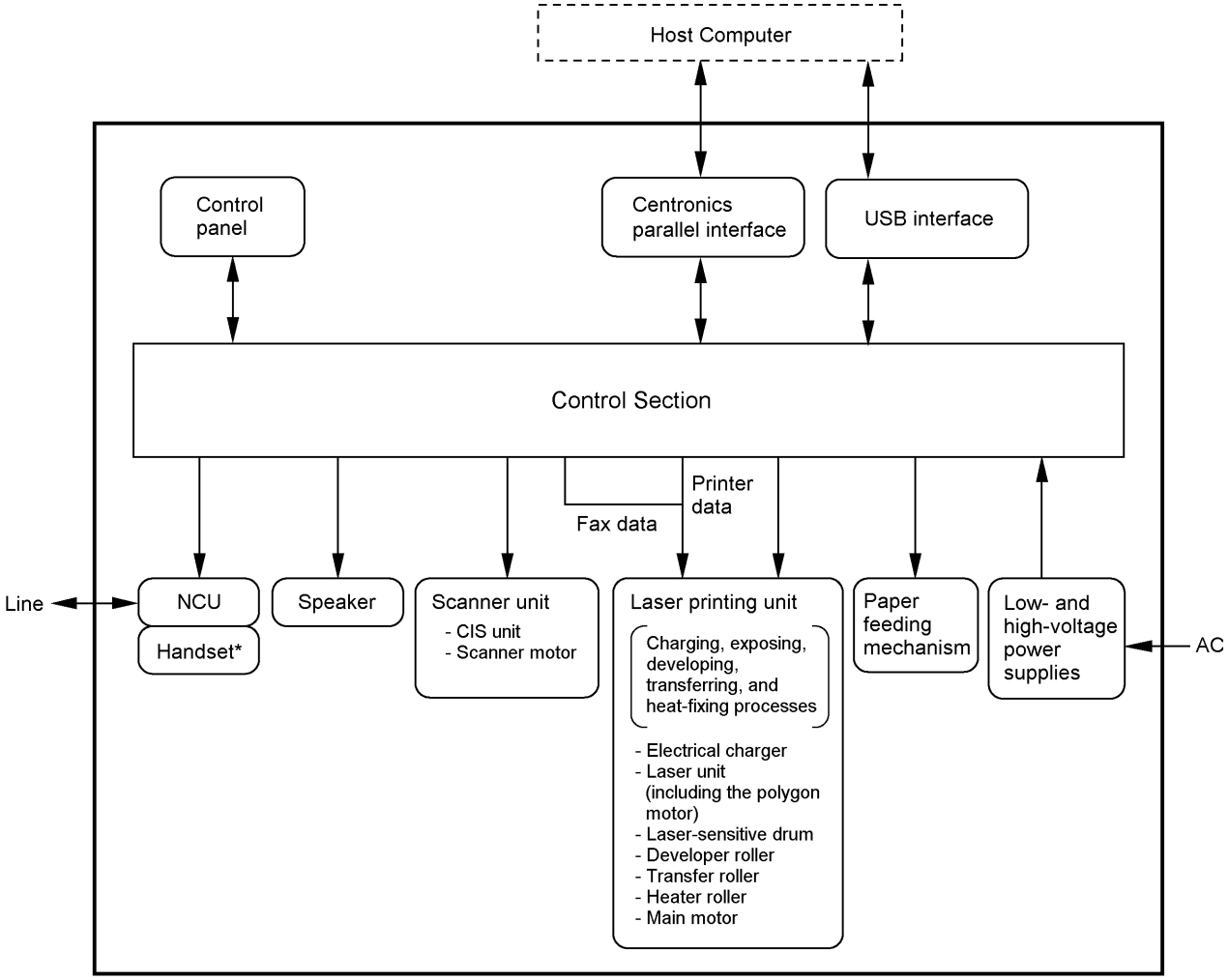
THEORY OF OPERATION

CHAPTER III. THEORY OF OPERATION

CONTENTS

1. OVERVIEW III-1
2. MECHANISMS III-2
   - 2.1 Scanner Mechanism III-3
     - 2.1.1 Document feeding and ejecting mechanism III-3
     - 2.1.2 Scanner III-3
   - 2.2 Laser Printing Mechanism III-4
     - 2.2.1 Paper pick-up and registration mechanism III-4
     - 2.2.2 Print process mechanism III-5
       - (1) Charging process III-6
       - (2) Exposing process III-6
       - (3) Developing process III-7
       - (4) Transferring process III-7
     - 2.2.3 Heat-fixing mechanism III-8
     - 2.2.4 Paper ejecting mechanism III-9
   - 2.3 Sensors and Actuators III-10
3. CONTROL ELECTRONICS III-12
   - 3.1 Configuration III-12
   - 3.2 Main PCB III-13
   - 3.3 Engine PCB III-15
   - 3.4 NCU PCB III-16
   - 3.5 Control Panel PCB III-19
   - 3.6 Power Supply PCB III-20
     - [1] Low-voltage power supply PCB III-20
     - [2] High-voltage power supply PCB III-21

1. OVERVIEW

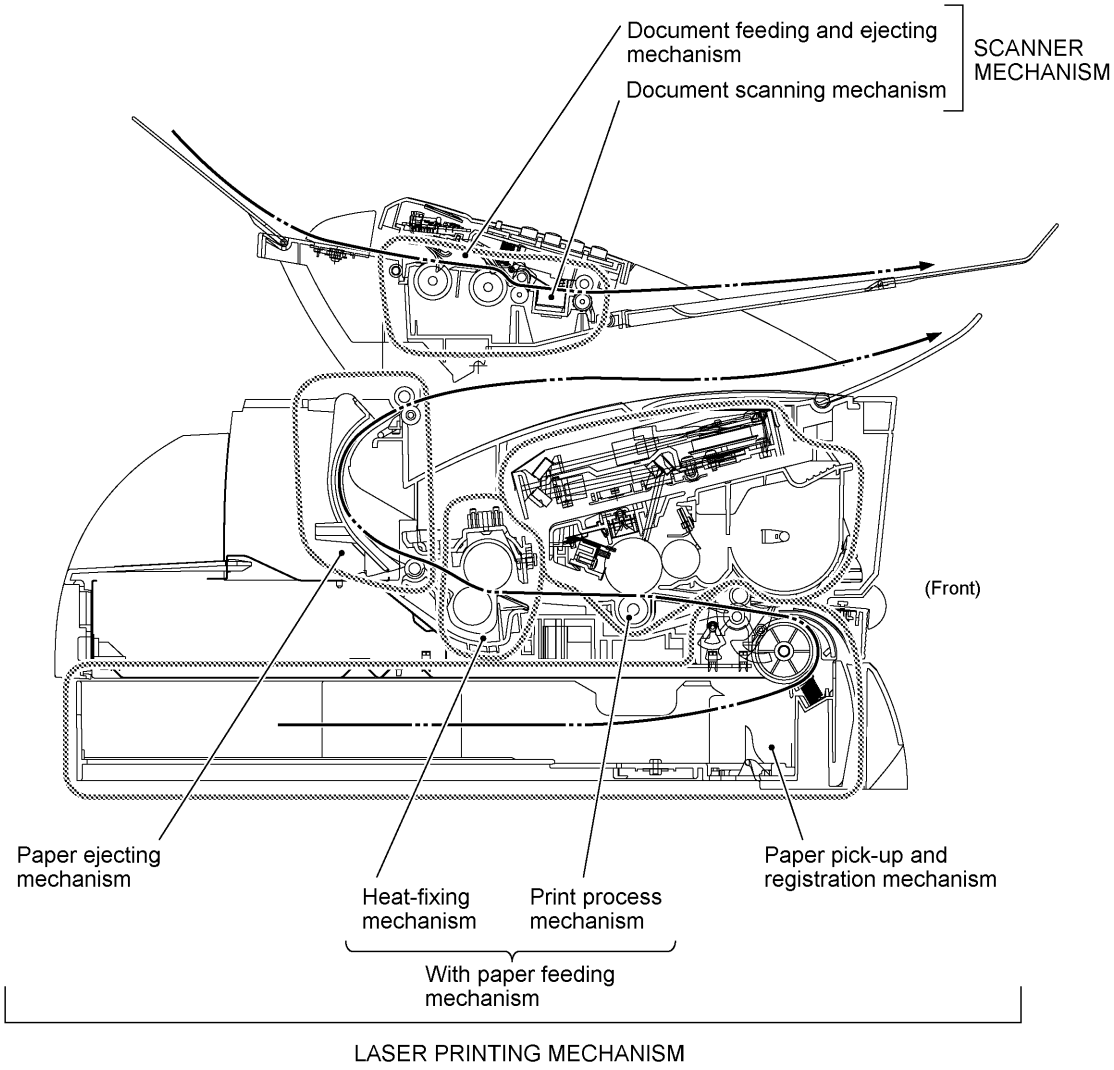


*Not provided on those models without handset.

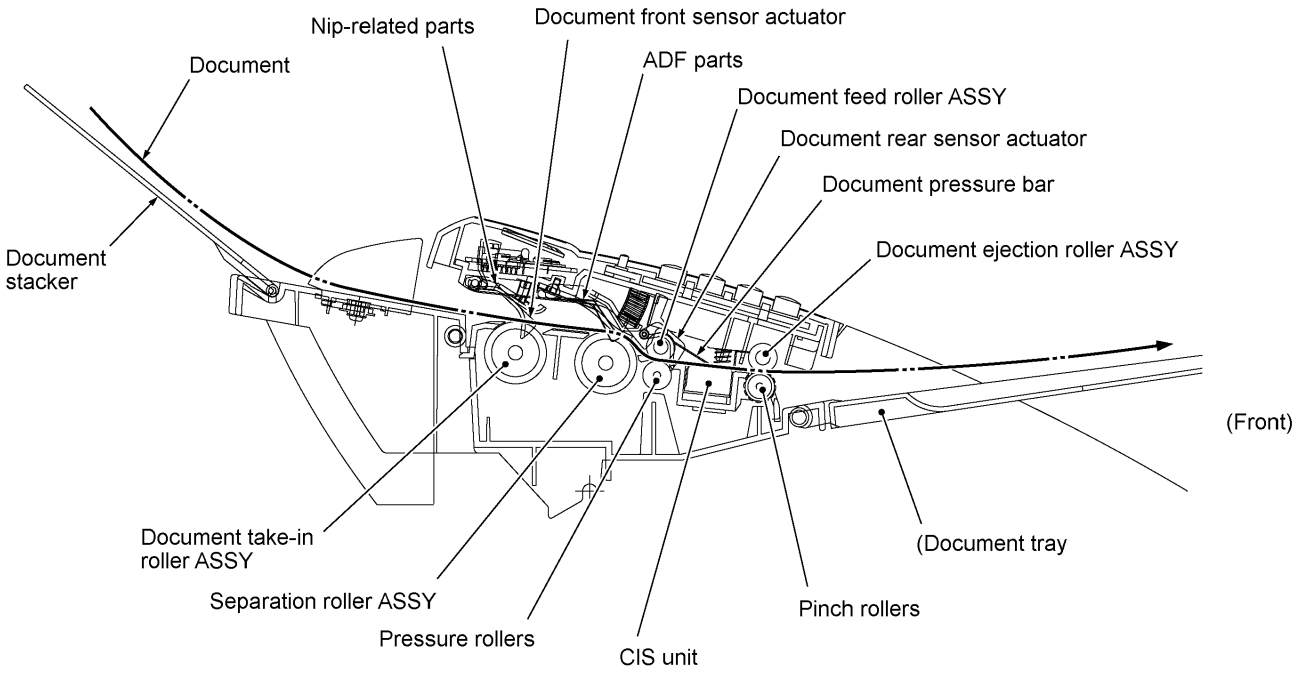
2. MECHANISMS

The facsimile equipment is classified into the following mechanisms:

SCANNER MECHANISM	- Document feeding and ejecting mechanism - Document scanning mechanism
LASER PRINTING MECHANISM	- Paper pick-up and registration mechanism - Print process mechanism (consisting of charging, exposing, developing, and transferring processes) with paper feeding mechanism - Heat-fixing mechanism with paper feeding mechanism - Paper ejecting mechanism
SENSORS AND ACTUATORS	



2.1 Scanner Mechanism



2.1.1 Document feeding and ejecting mechanism

This mechanism consists of the document stacker, automatic document feeder (ADF), document ejection roller ASSY, and document sensors. (For details about the sensors, refer to Section 2.3.)

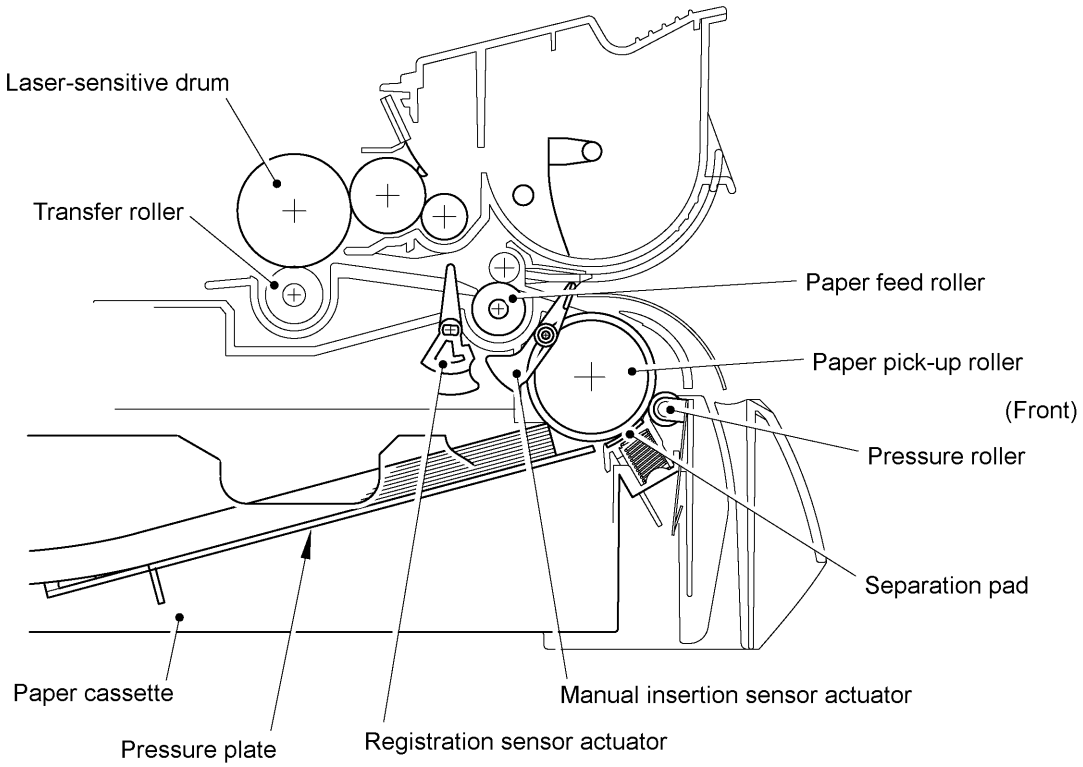
If the operator sets documents on the document stacker and starts the scanning operation, the scanner motor rotates so that the ADF (which consists of the document take-in roller ASSY, nip-related parts, separation roller ASSY, and ADF parts) feeds those documents into the equipment, starting from the bottom sheet to the top, page by page. Each document advances with the document feed roller ASSY to the scanner, and then it is fed out of the equipment with the document ejection roller ASSY.

2.1.2 Scanner

The scanner uses a contact image sensor (CIS) unit which consists of an LED array illuminating documents, a self-focus lens array collecting the reflected light, a CIS PCB carrying out photoelectric conversion to output picture element data, and a cover glass on which a document advances. When the document passes between the document pressure bar and the cover glass, it is scanned.

2.2 Laser Printing Mechanism

2.2.1 Paper pick-up and registration mechanism



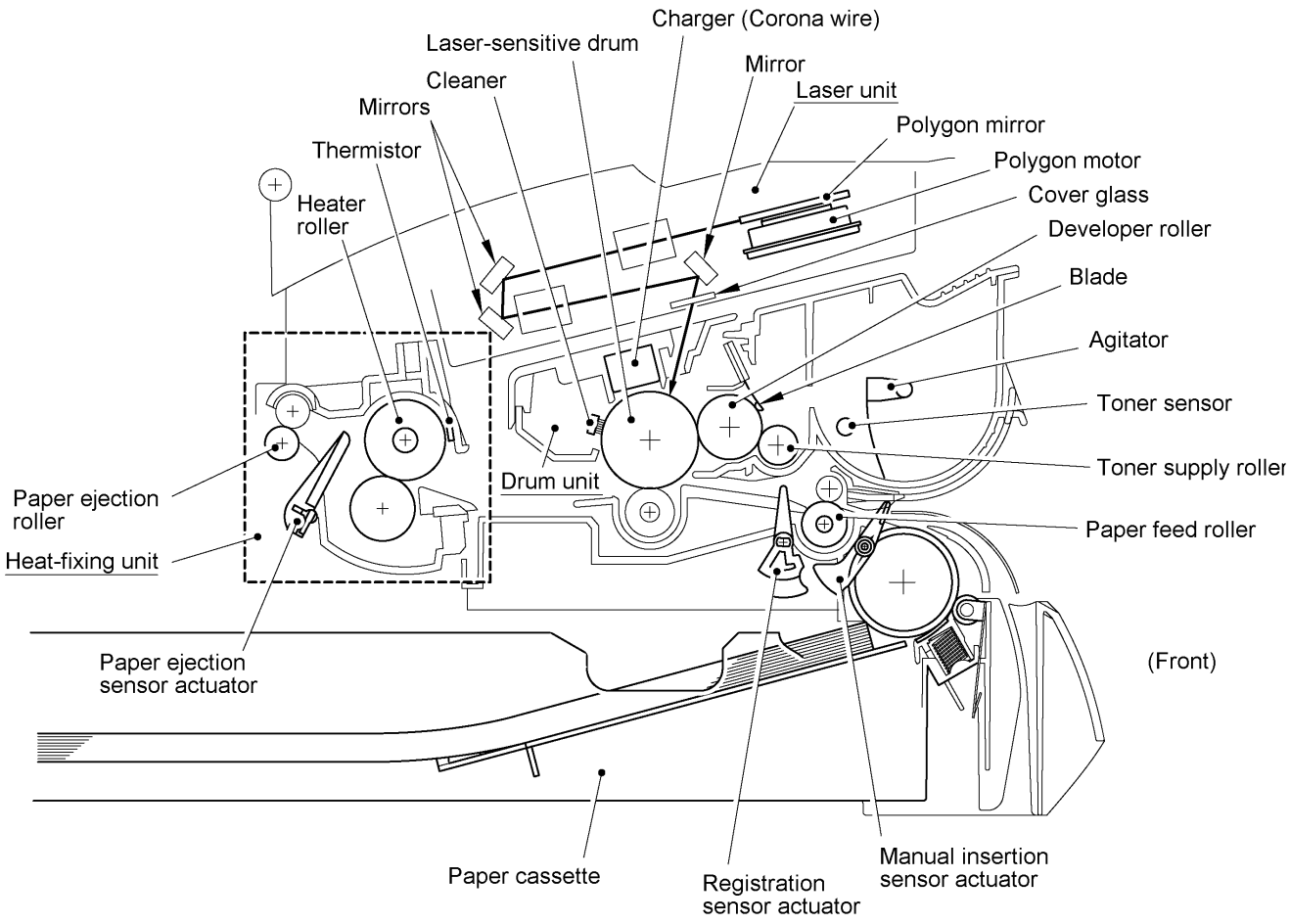
At the 1st stage, the controller drives the main motor without energizing the solenoid so that the paper feed roller simply idles.

At the 2nd stage, the controller energizes the solenoid so that the paper feed roller no longer rotates and the paper pick-up roller starts rotating to pick up paper into the equipment, a sheet at a time. After the leading edge of the pulled-in paper passes through the manual insertion sensor actuator, the paper is further fed for the specified time length. Accordingly, the leading edge will reach the paper feed roller where the paper skew will be eliminated.

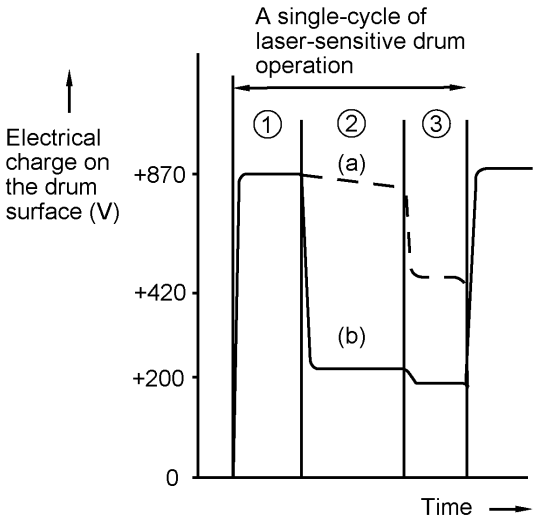
At the 3rd stage, the controller deenergizes the solenoid to rotate the paper feed roller for feeding paper to the transfer block in the drum unit.

When the leading and trailing edges of the paper pass through the registration sensor actuator, the sensor signals them to the controller. According to those signals, the controller may determine the first print position on the paper.

2.2.2 Print process mechanism



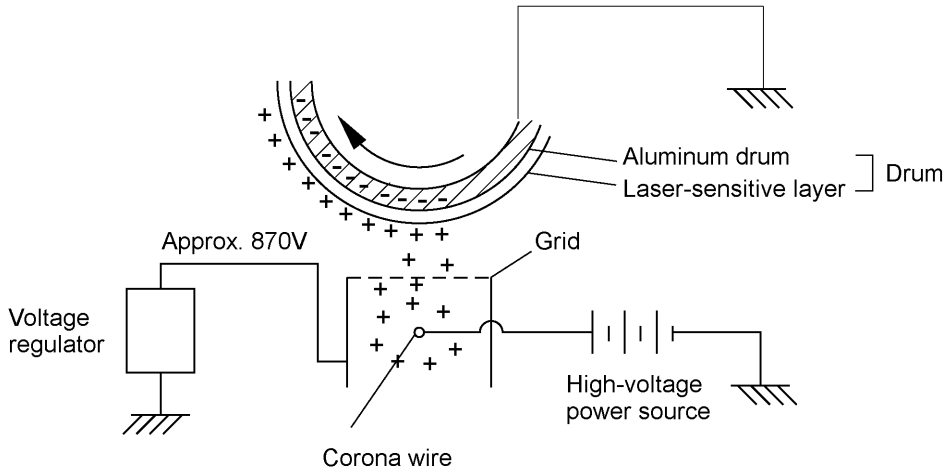
The print process unit works with laser beam, electrical charges, and toner. The graph below shows the transition of electrical charge on the surface of the laser-sensitive drum through the four processes: charging, exposing, developing, and transferring processes.



① Charges the drum surface positively.
② Exposes the drum surface to a laser beam to form a latent image and develops the latent image with toner.
(a) Unexposed area (Non-image area)
(b) Exposed area (Image area)
③ Transfers the toner-formed image from the drum to paper.

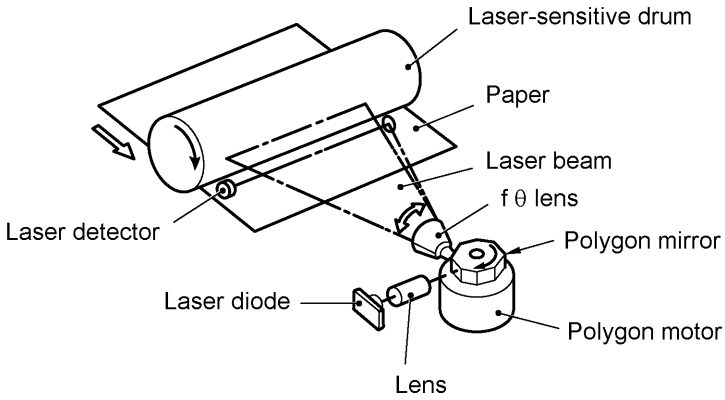
(1) Charging process

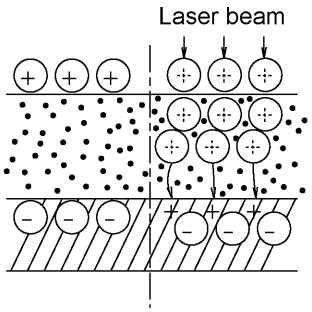
The high-voltage power supply applies DC bias to the corona wire to generate ion on the grid. The ion uniformly charges the surface of the laser-sensitive drum to approx. 870V which is kept by the voltage regulator grounding the grid to the frame.



(2) Exposing process

When the laser-sensitive drum holds a positive electrical charge, the laser beam issued from the laser unit scans the drum according to the print image to expose the drum surface for neutralizing the spots where black should be, forming an electrostatic latent image.





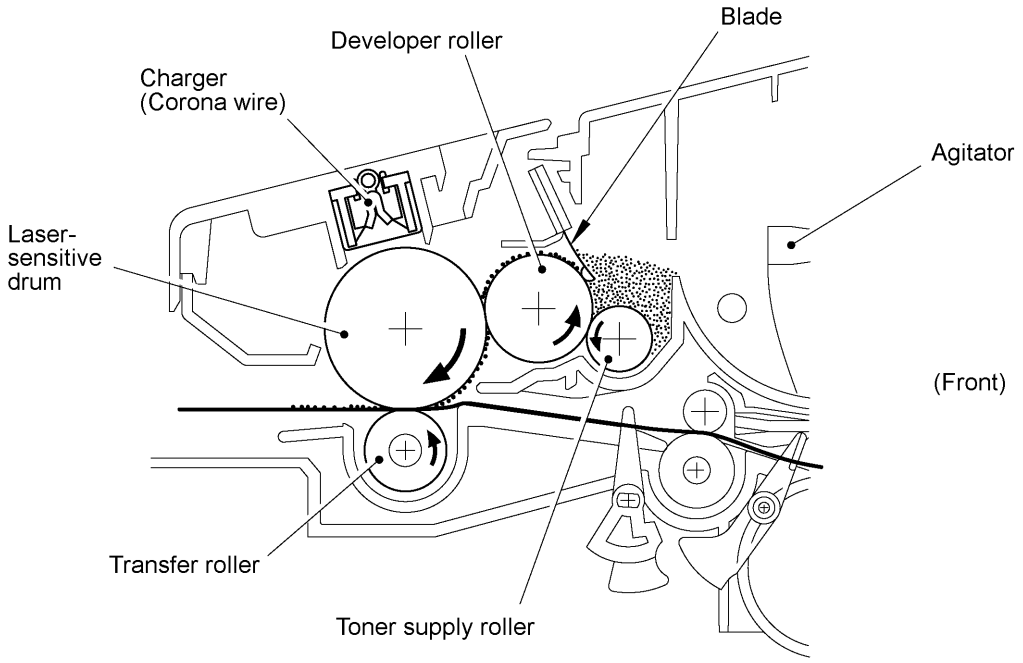
(3) Developing process

The developing process develops an electrostatic latent image formed on the drum in the exposing process, into a toner image.

The developer roller attracts the toner particles fed from the toner cartridge by the toner supply roller, and then conveys them to the contact section with the laser-sensitive drum

On the contact section between the developer roller and drum, the positive toner particles stick to the neutralized spots on the drum according to the principles of attraction and repulsion, transforming a latent image into a toner image.

The agitator (which agitate toner particles in the chamber) and the blade allow toner particles to be fed onto the developer roller at an even thickness.



(4) Transferring process

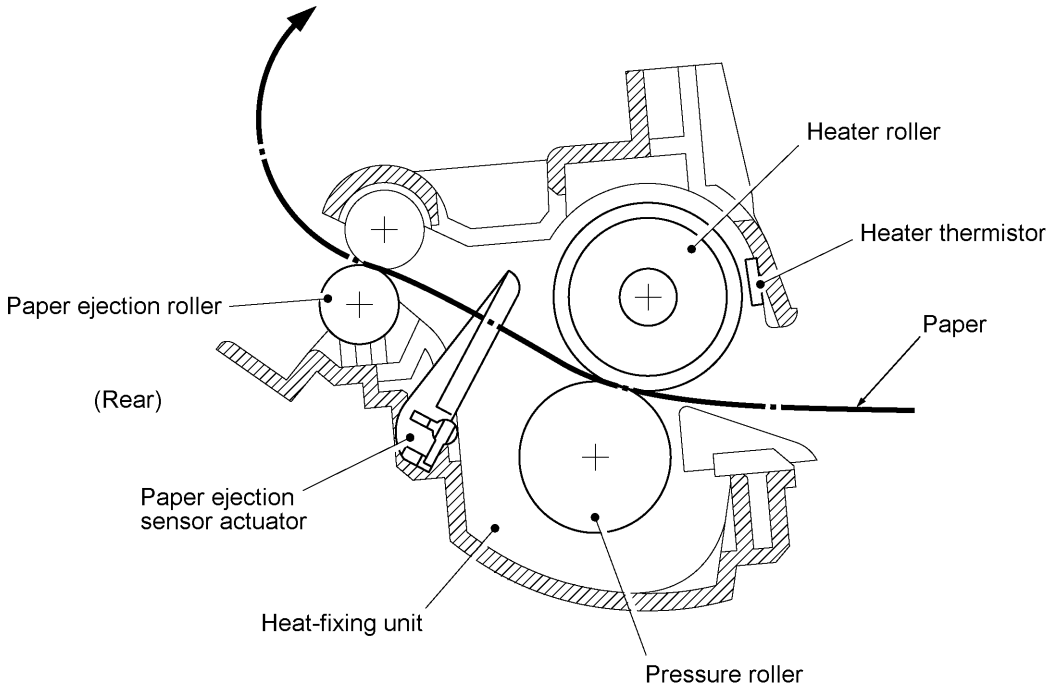
When a paper passes between the drum and the transfer roller, the controller negatively charges the transfer roller. The toner is positive, so the toner image formed on the drum will be transferred onto the paper according to the same principle as for the developing process.

Cleaning the transfer roller

In the transferring process, the transfer roller may be contaminated with toner since not all the toner particles on the drum are transferred onto the paper but some toner particles will remain on the drum and will be transferred from the drum to the transfer roller. If paper jam or other errors occur, the toner image fails to stick to the paper and will stick to the transfer roller.

To repulse this toner, the controller positively charges the transfer roller. The toner returns from the transfer roller to the drum. During non-printing rotation of the drum, the toner particles on the drum will be returned to the chamber through the developer roller.

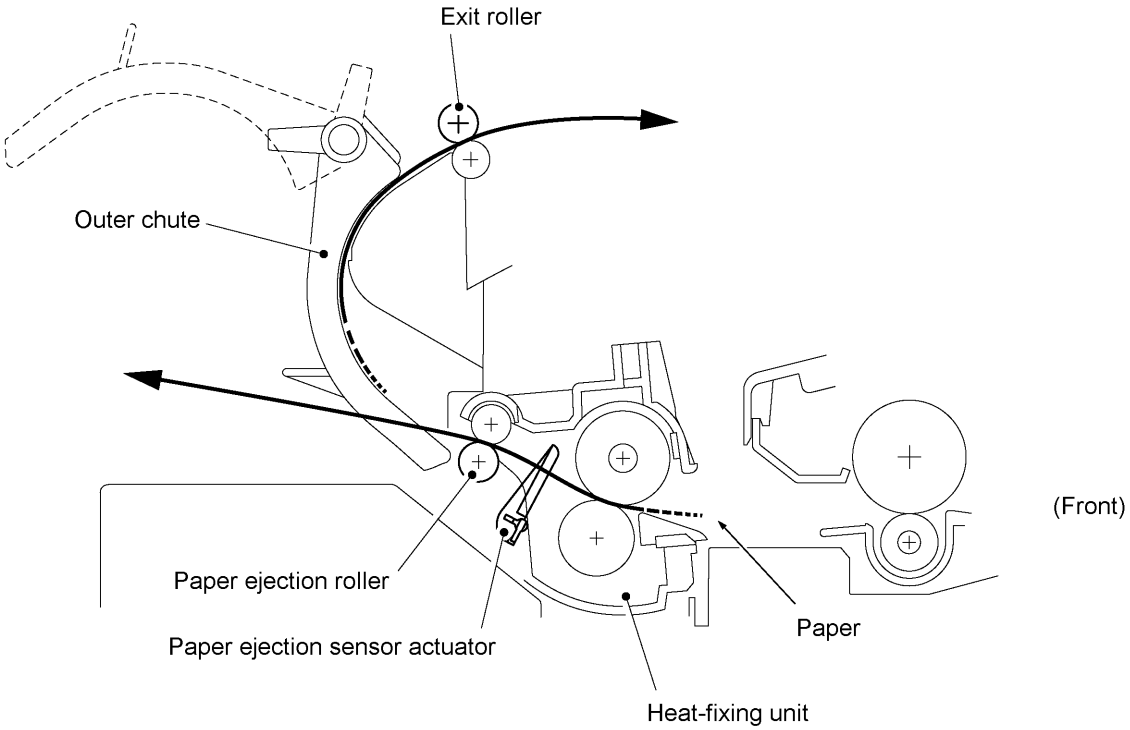
2.2.3 Heat-fixing mechanism



As the paper passes between the heater roller and the pressure roller in the heat-fixing unit, the heater roller fuses the toner on the paper.

The controller monitors the internal resistance of the heater thermistor to keep the surface temperature of the heater roller constant by turning the halogen heater lamp on and off.

2.2.4 Paper ejecting mechanism



After the paper passes through the heat-fixing process, it will be ejected from the heat-fixing unit by the paper ejection roller.

If the leading edge of the paper pushes up the actuator of the paper ejection sensor, the sensor signals the start of paper ejection. If the trailing edge has passed through the sensor actuator, the sensor signals the completion of paper ejection.

The paper will be turned over along the outer chute and ejected onto the main cover by the exit roller.

2.3 Sensors and Actuators

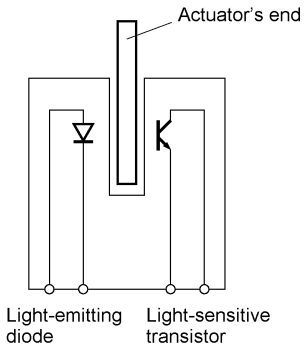
This equipment has eleven sensors: eight photosensors, two thermistors and a mechanical switch as described below.

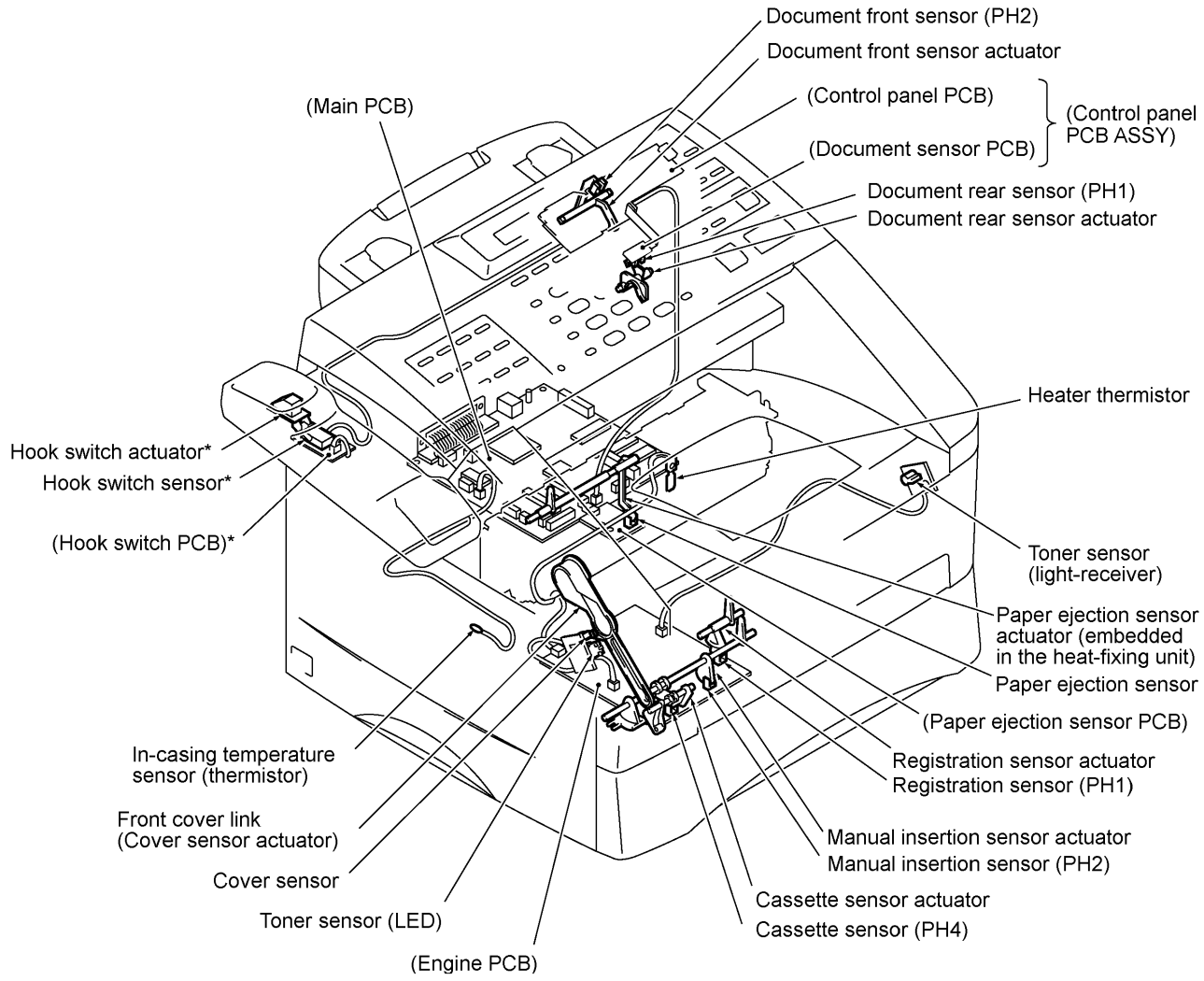
Sensor name	Type	Located on	
Document front sensor	Photosensor	Control panel PCB	Control panel PCB ASSY
Document rear sensor	Photosensor	Document sensor PCB	
Manual insertion sensor	Photosensor	Engine PCB	
Registration sensor	Photosensor	Engine PCB	
Cassette sensor	Photosensor	Engine PCB	
Paper ejection sensor	Photosensor	Paper ejection sensor PCB	
Toner sensor	Photosensor	Toner sensor (LED) PCB and toner sensor (light-receiver) PCB	
Cover sensor	Photosensor	Toner sensor (LED) PCB	
Heater thermistor	Thermistor	Heat-fixing unit	
In-casing temperature sensor	Thermistor	Left-hand plate of the main chassis	
Hook switch*	Mechanical switch	Hook switch PCB*	

*For models equipped with a handset

- Document front sensor which detects the presence of documents.
- Document rear sensor which detects the leading and trailing edges of pages to tell the control circuitry when the leading edge of a new page has reached the starting position and when the scan for that page is over.
- Manual insertion sensor which detects whether paper is inserted manually through the paper slot or whether paper fed through the paper cassette has jammed.
- Registration sensor which detects the leading and trailing edges of recording paper, which allows the controller to determine the registration timing and check paper jam.
- Cassette sensor which detects whether the paper cassette is loaded.
- Paper ejection sensor which detects whether the recording paper goes out of the equipment.
- Toner sensor which detects whether there is toner or a toner cartridge is loaded.
- Cover sensor which detects whether the front cover is closed.
- Heater thermistor which allows the controller to monitor the temperature of the heater roller of the fixing unit.
- In-casing temperature sensor which allows the controller to monitor the temperature inside the equipment.
- Hook switch* which detects whether the handset is placed on the handset mount*.

The above photosensors are a photo-interrupter consisting of a light-emitting diode and a light-sensitive transistor. Each of them has an actuator separately arranged as shown on the next page.





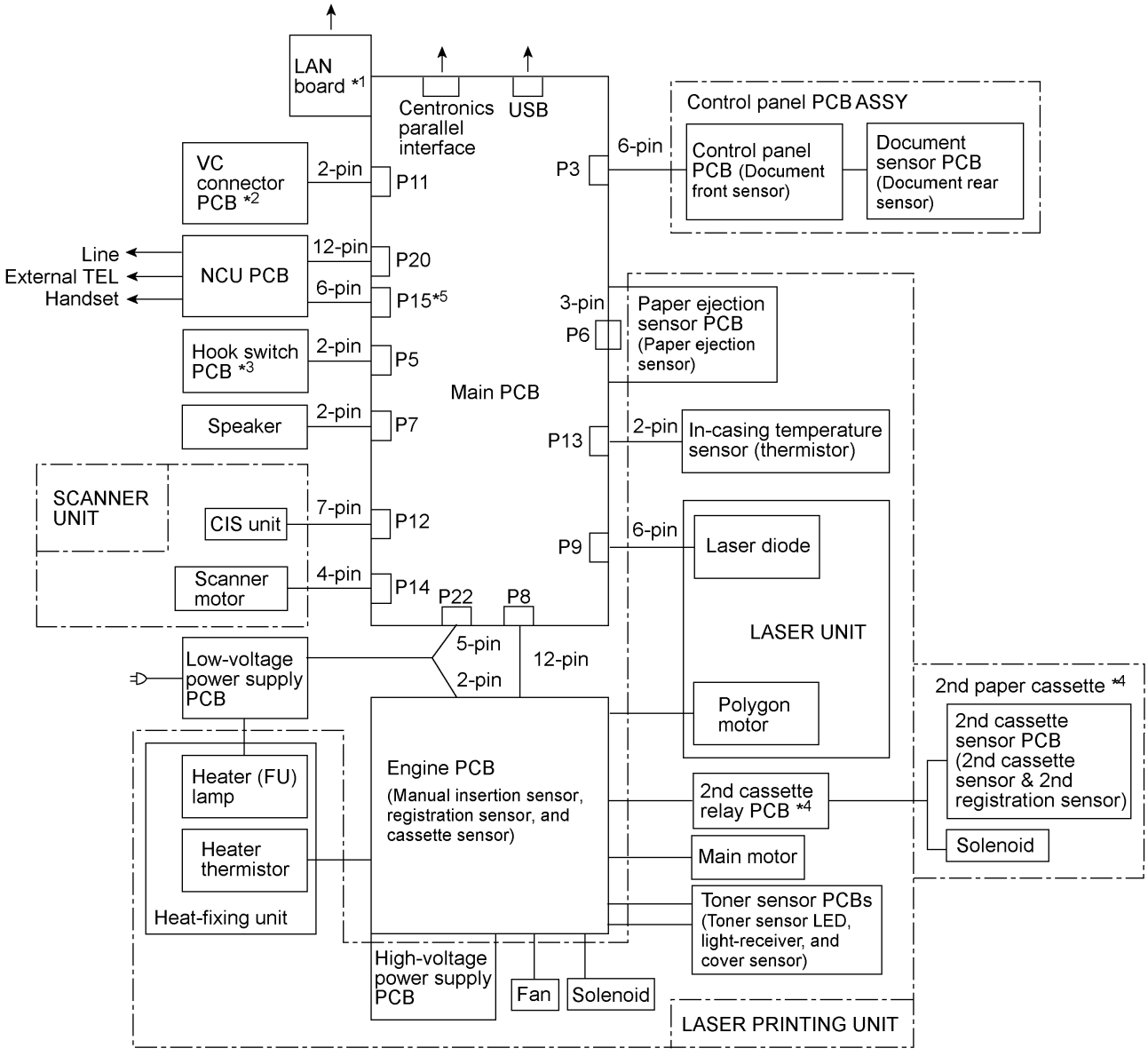
* Provided on models equipped with a handset.

Location of Sensors and Actuators

3. CONTROL ELECTRONICS

3.1 Configuration

The hardware configuration of the facsimile equipment is shown below.

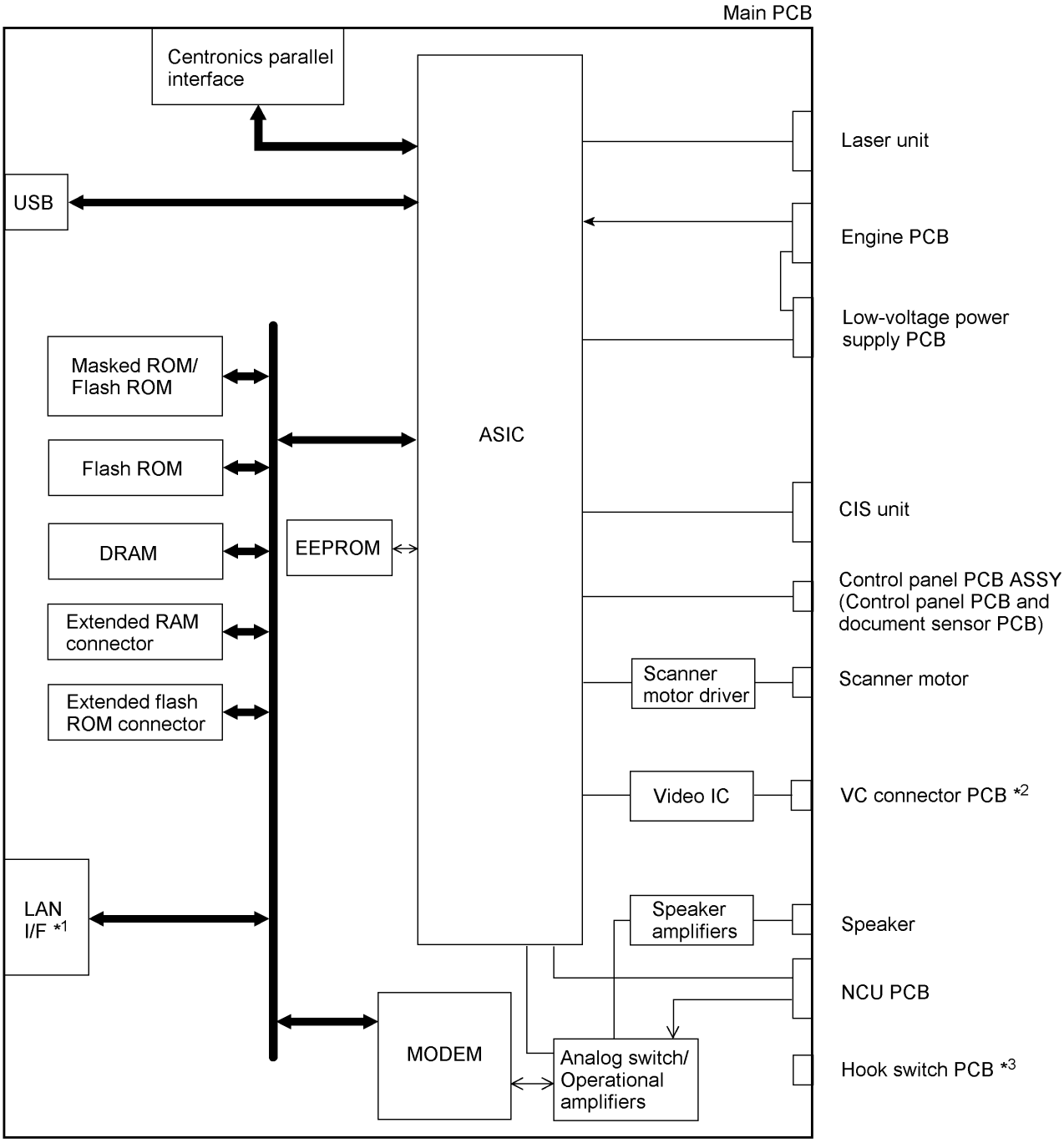


*1 Provided on models supporting LAN interface.
*2 Provided on models supporting video capture.
*3 Provided on models equipped with a handset.
*4 Provided on models available with a 2nd paper cassette (as an option or standard).
*5 Provided on European models.

Configuration of Facsimile Equipment

3.2 Main PCB

The main PCB, which is the nucleus controlling the entire operation of the equipment, consists of a FAX engine (ASIC), memories, MODEM, motor drive circuitry, sensor detection circuitry, and analog circuits for scanning, printing, and power transmission shifting.

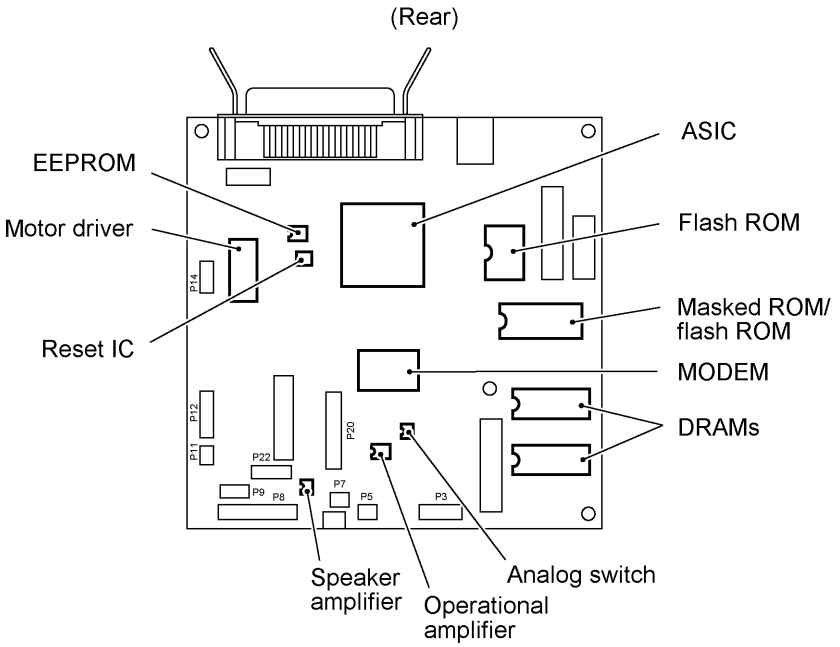


EEPROM: Electrically Erasable Programmable Read-only Memory
DRAM: Dynamic Random Access Memory

*1 Provided on models supporting LAN interface.
*2 Provided on models supporting video capture.
*3 Provided on models equipped with a handset.

Block Diagram of Main PCB

Main PCB


(Rear)
EEPROM
Motor driver
Reset IC
ASIC
Flash ROM
Masked ROM/
flash ROM
MODEM
DRAMs
Speaker
amplifier
Operational
amplifier
Analog switch
P14
P12
P11
P22
P20
P9
P8
P7
P5
P3

3.3 Engine PCB

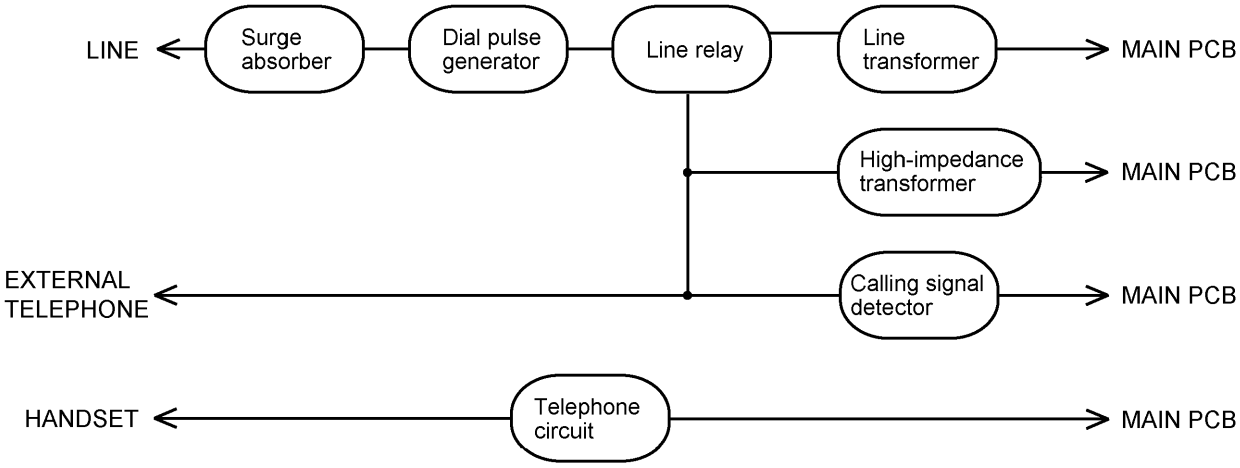
On the engine PCB is a gate array which converts serial signals sent from the main PCB into parallel signals. According to those signals, the engine PCB controls the following:

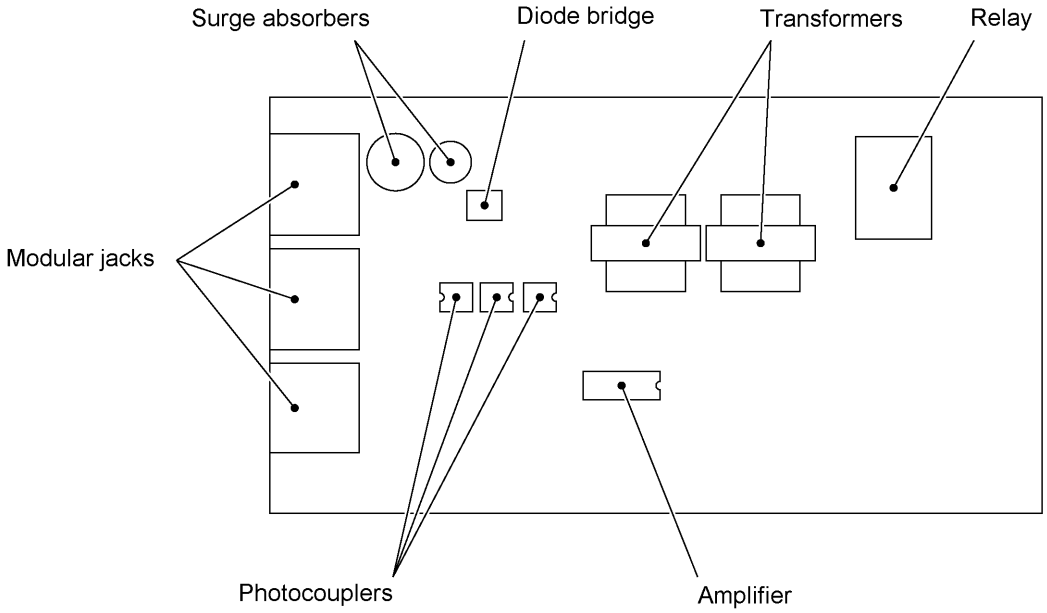
- Motors--main motor, fan motor, and polygon motor
- High-voltage power supply
- Solenoid(s)
- Heater
- Heater thermistor
- Sensors--cover sensor, toner sensor, manual insertion sensor, registration sensor(s), and cassette sensor(s)

3.4 NCU PCB

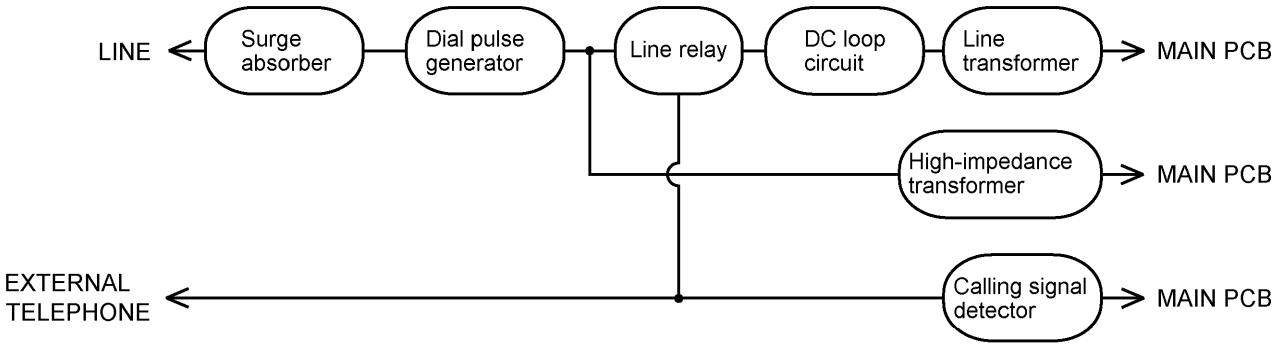
The NCU PCB switches the communications line to telephone or built-in MODEM, under the control of the main PCB.

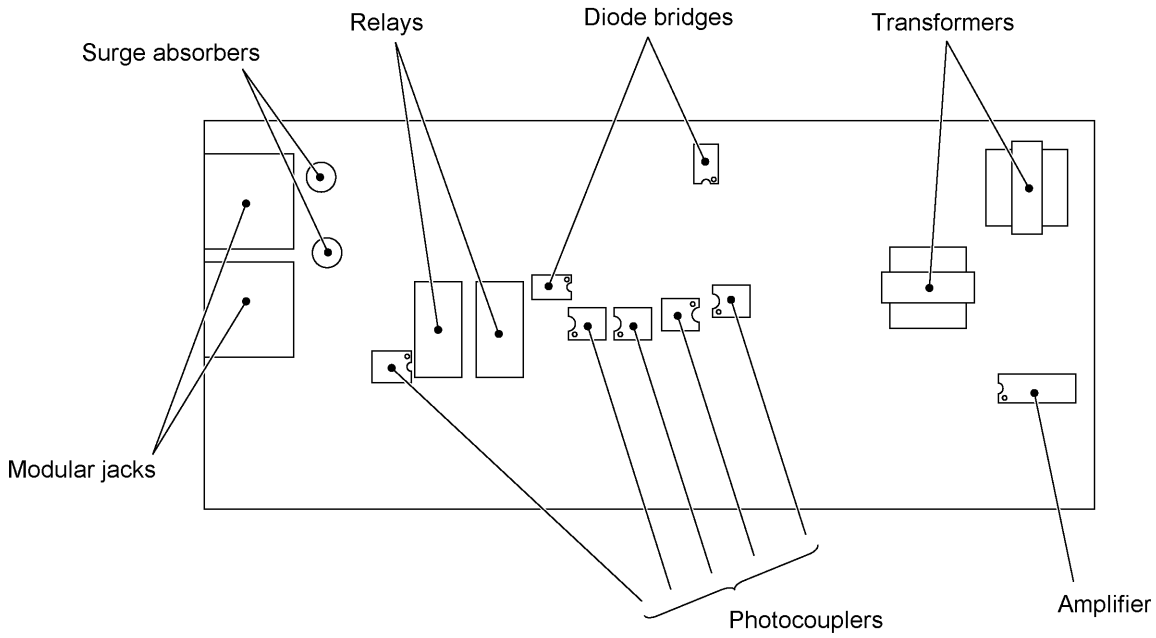
US versions



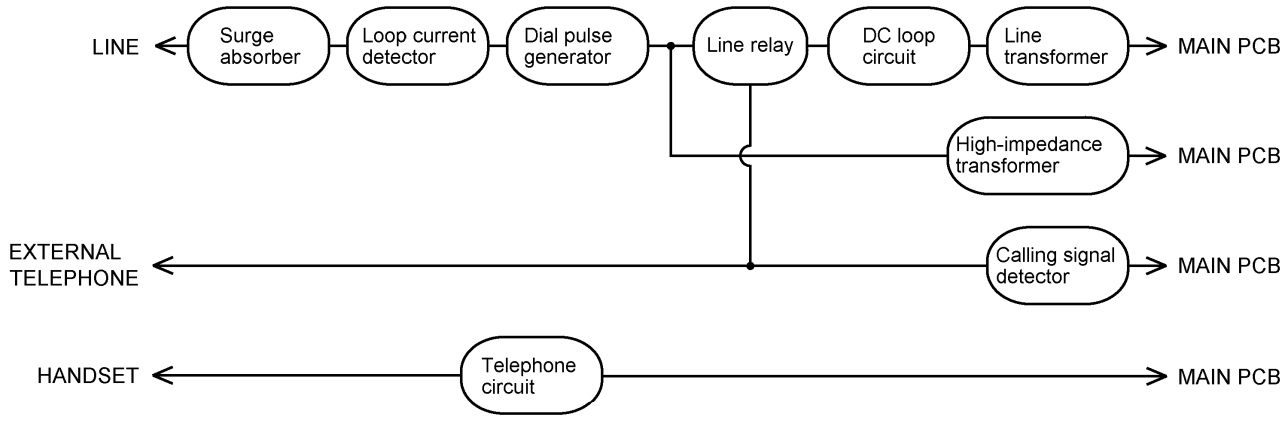


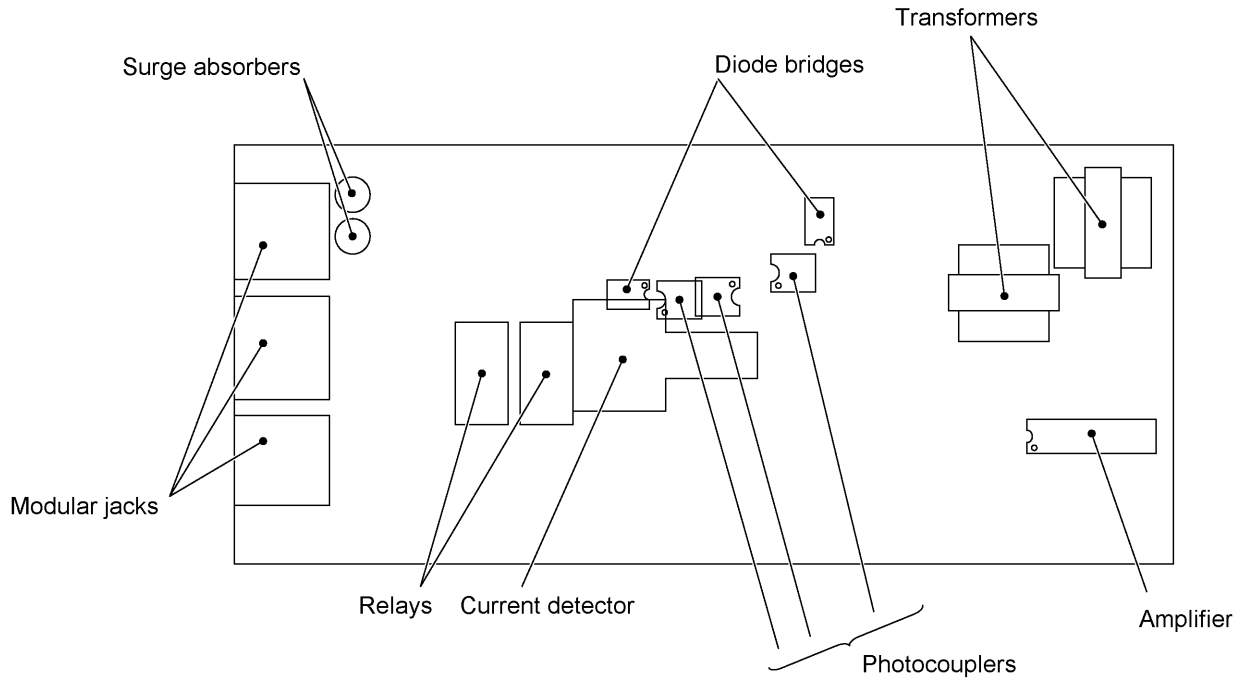
European versions





Asian/Oceanian versions



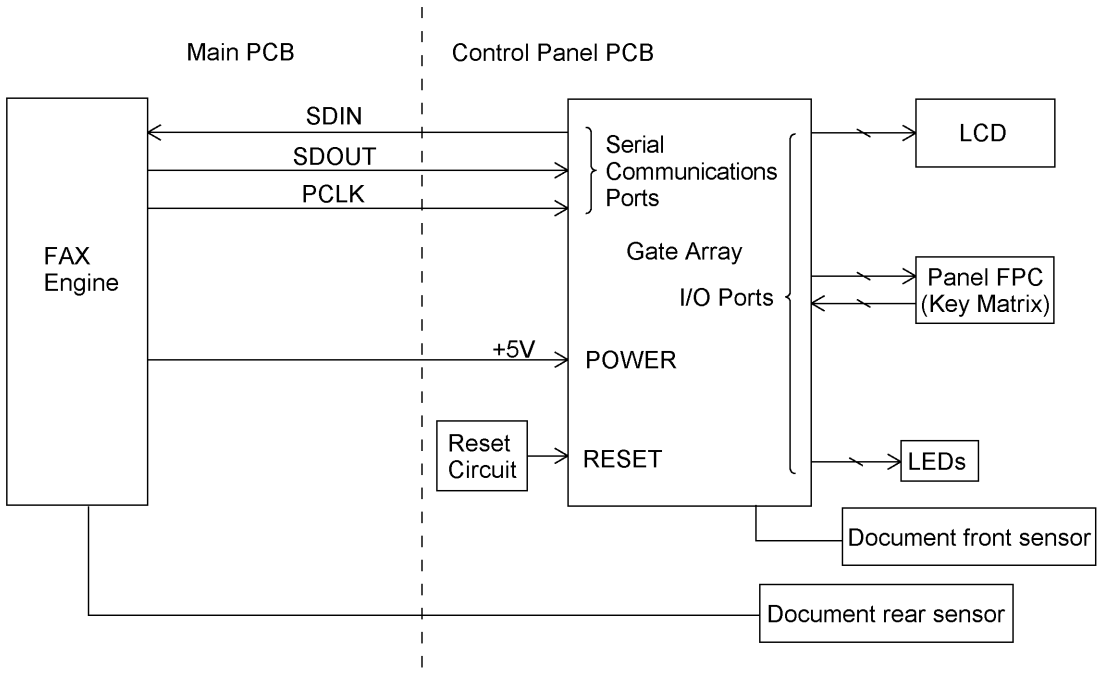


3.5 Control Panel PCB

The control panel PCB and the main PCB communicate with each other by serially transmitting commands and data.

The control panel unit consists of a gate array, an LCD and LEDs, which are controlled by the gate array according to commands issued from the FAX engine on the main PCB.

The panel FPC is a flexible keyboard PCB which integrates the key matrix having rubber keytops.



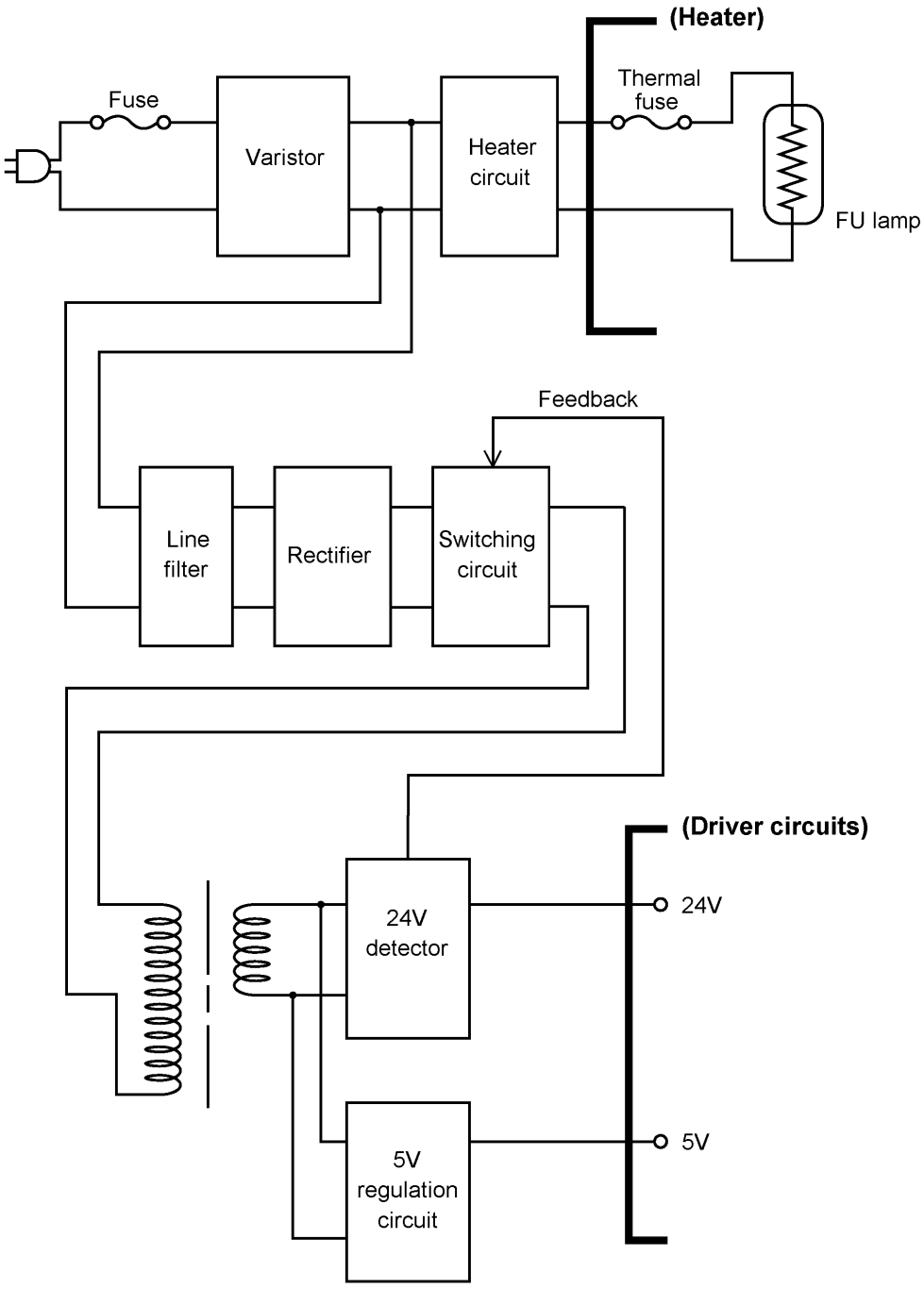
Control Panel PCB and its Related Circuit

3.6 Power Supply PCB

[1] Low-voltage power supply PCB

The low-voltage power supply uses the switching regulation system to generate DC power (+5V and +24V) from a commercial AC power supply for the driver circuits. The +5V source is fed to the logic, control panel, sensors, CIS unit, etc. The 24V source is fed to the motors, solenoid, fan, and high-voltage power supply PCB.

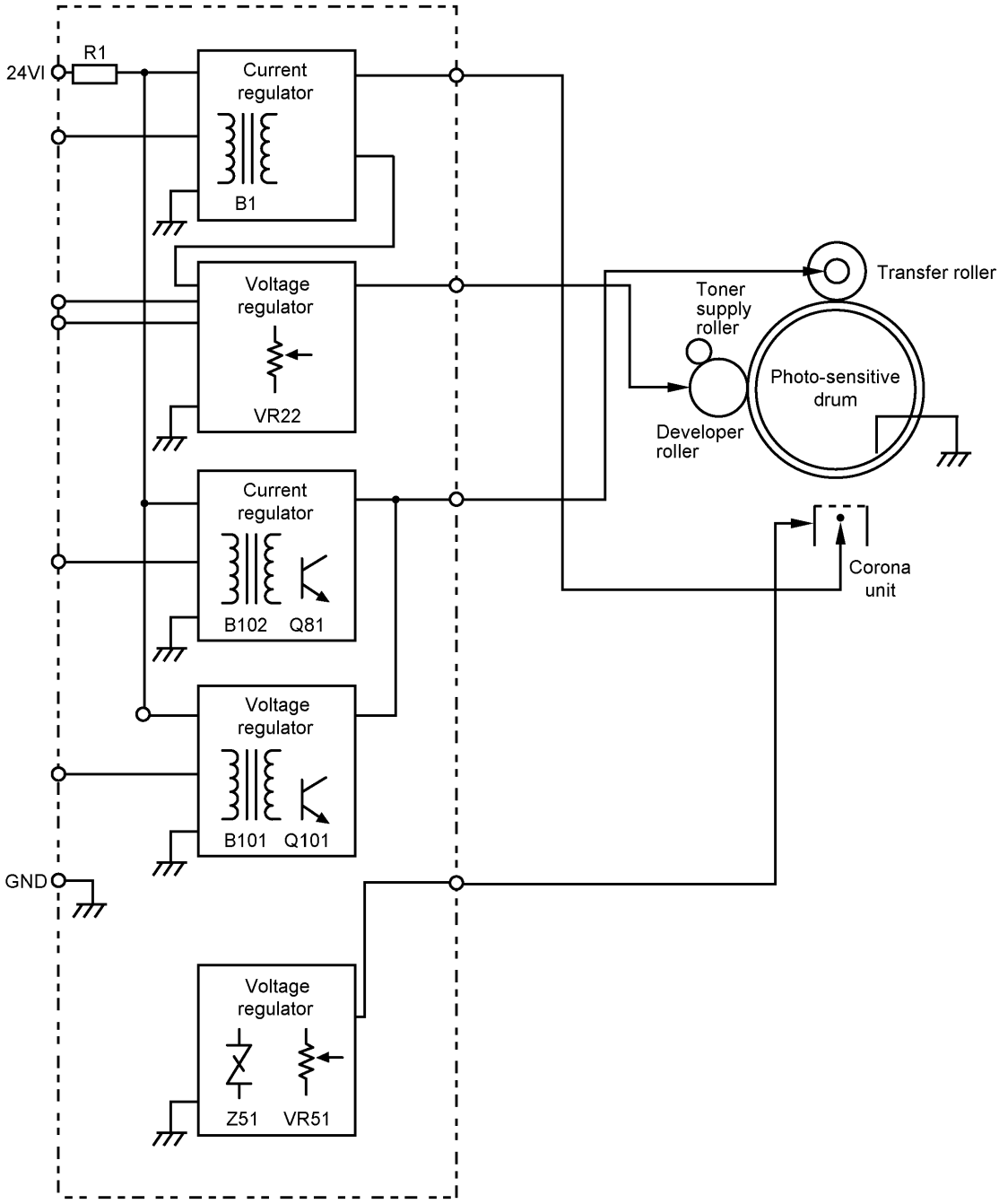
The low-voltage power supply also feeds AC power to the heater of the heat-fixing unit.



Low-voltage Power Supply Circuit

[2] High-voltage power supply PCB

This power supply generates high-voltage power sources from the 24V source fed from the low-voltage power supply for charging, developing, and transferring in the laser printing process.



High-voltage Power Supply Circuit

CHAPTER IV.

DISASSEMBLY/REASSEMBLY AND LUBRICATION

CHAPTER IV. DISASSEMBLY/REASSEMBLY AND LUBRICATION

CONTENTS

1. DISASSEMBLY/REASSEMBLY IV-1

Safety Precautions IV-1

Preparation IV-2

How to Access the Object Component IV-2

Disassembly Order Flow IV-3

1.1 Rear Cover IV-4

1.2 Access Plates R and F IV-4

1.3 Control Panel ASSY IV-5

1.4 Panel Rear Cover and Control Panel IV-6

1.5 Document Feed Roller ASSY, Document Ejection Roller ASSY, and Pinch Rollers IV-9

1.6 CIS Unit IV-10

1.7 Scanner Frame ASSY (Scanner Motor, Scanner Drive Unit, Document Take-in Roller, Separation Roller, Pressure Rollers, and Control Panel Locks) IV-11

1.8 Top Cover (Exit Roller, Speaker, and Document Guides) IV-15

1.9 Handset Mount and Hook Switch PCB (for models equipped with a handset) Side Cover (for models without handset) IV-21

1.10 Paper Sub Tray IV-23

1.11 VC Cover, VC Bracket, and VC Connector PCB (for models supporting video capture) IV-24

1.12 Front Cover Front Sub Cover (for models not supporting video capture) IV-25

1.13 Outer Chute and Paper Pinch Rollers IV-26

1.14 Main Cover IV-27

1.15 Switch Cover IV-28

1.16 Laser Unit IV-29

1.17 Heat-fixing Unit and FU Lamp IV-30

1.18 Fan IV-34

1.19 Drive Gear ASSY and Main Motor ASSY IV-36

1.20 NCU Shield and NCU PCB IV-38

1.21 Bottom Plate, Main PCB and Bottom Insulation Film IV-40

1.22 Low-voltage Power Supply PCB and Power Inlet IV-44

1.23 Inner Insulation Film, High-voltage Power Supply PCB, Engine PCB, and 2nd Cassette Relay PCB* IV-46

1.24 Toner Sensor (light-receiver) PCB and Toner Sensor (LED) PCB IV-48
1.25 Gears and Paper Pick-up Roller IV-49
1.26 Paper Feed Roller ASSY IV-50
1.27 Clutch Levers, Cassette Guide L, and Solenoid IV-51
1.28 Paper Cassette IV-52
1.29 Cleaning of High-voltage Contacts and Grounding Contacts IV-53

2. LUBRICATION IV-55

[1] Document feed roller ASSY and document ejection roller ASSY IV-55
[2] Control panel locks IV-56
[3] Scanner frame ASSY, document take-in roller and its shaft, and separation roller and its shaft IV-56
[4] Top cover IV-57
[5] Drive gear ASSY IV-58
[6] Paper cassette IV-59

1. DISASSEMBLY/REASSEMBLY

Safety Precautions

To prevent the creation of secondary problems by mishandling, observe the following precautions during maintenance work.

(1) Unplug the power cord from the power outlet before accessing parts or units inside the machine. When having access to the power supply, be sure to unplug the power cord from the power outlet.

(2) When servicing the optical system of the laser printing unit, be careful not to place screwdrivers or other reflective objects in the path of the laser beam. Be sure to take off any personal accessories such as wrist watches and rings before working on the printer. A reflected beam, though invisible, can permanently damage your eyes.

(3) If the equipment has been printing, allow the heat-fixing unit (inside this unit is a red-colored heater roller) sufficient time to cool down before starting maintenance jobs. It is HOT!

(4) Be careful not to lose screws, washers, or other parts removed for parts replacement.

(5) Do not remove gears from the document feed roller ASSY or document ejection roller ASSY if at all possible. Once removed, they will become unusable and new gears will have to be put back in.

(6) When using soldering irons and other heat-generating tools, take care not to damage the resin parts such as wires, PCBs, and covers.

(7) Before handling the PCBs, touch a metal portion of the equipment to discharge static electricity; otherwise, the electronic parts may be damaged due to the electricity charged in your body.

(8) When transporting PCBs, be sure to wrap them in conductive sheets such as aluminum foil.

(9) Be sure to reinsert self-tapping screws correctly, if removed. Unless otherwise specified, tighten screws to the following torque values:

Taptite, bind B and cup B	M3:	0.7 N•m
	M4:	0.8 N•m
Taptite, cup S	M3:	0.8 N•m
Other screws	M3:	0.7 N•m
	M4:	0.8 N•m

(10) When connecting or disconnecting cable connectors, hold the connector bodies not the cables. If the connector has a lock, always slide the connector lock to unlock it.

(11) Before reassembly, apply the specified lubricant to the specified points. (Refer to Section 2 in this chapter.)

(12) After repairs, check not only the repaired portion but also that the connectors and other related portions function properly before operation checks.

Preparation

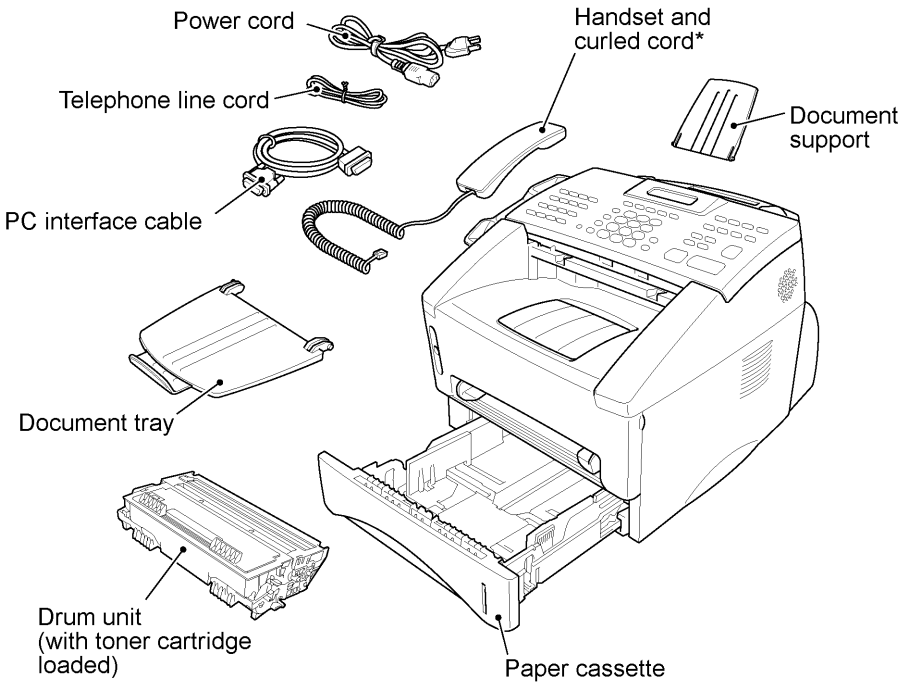
Prior to proceeding to the disassembly procedure,

(1) Unplug

- the power cord,
- the modular jack of the telephone line,
- the modular jack of the curled cord (and remove the handset)*,
- the PC interface cable, and
- the modular jack of an external telephone set if connected. (Not shown below.)

(2) Remove

- the document support,
- the document tray,
- the paper cassette, and
- the drum unit (with toner cartridge loaded)

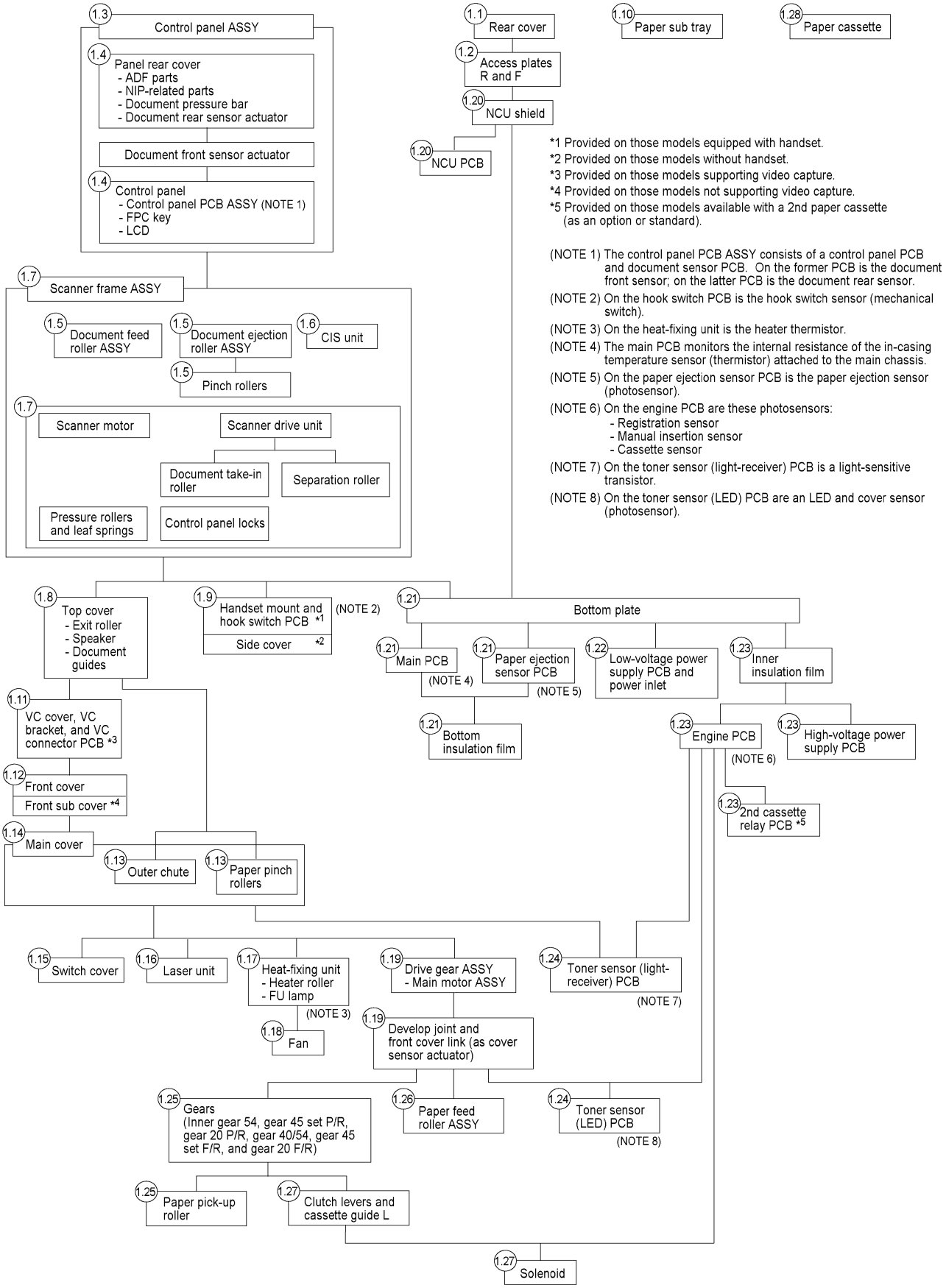


(*For those models equipped with handset.)

How to Access the Object Component

- On the next page is a disassembly order flow which helps you access the object components. To remove the heat-fixing unit, for example, first find it on the flow and learn its number (1.17 in this case). You need to remove parts numbered 1.3, 1.7, 1.8, 1.11, 1.12, and 1.14 so as to access the heat-fixing unit.
- Unless otherwise specified, the disassembled parts or components should be reassembled in the reverse order of removal.

Disassembly Order Flow

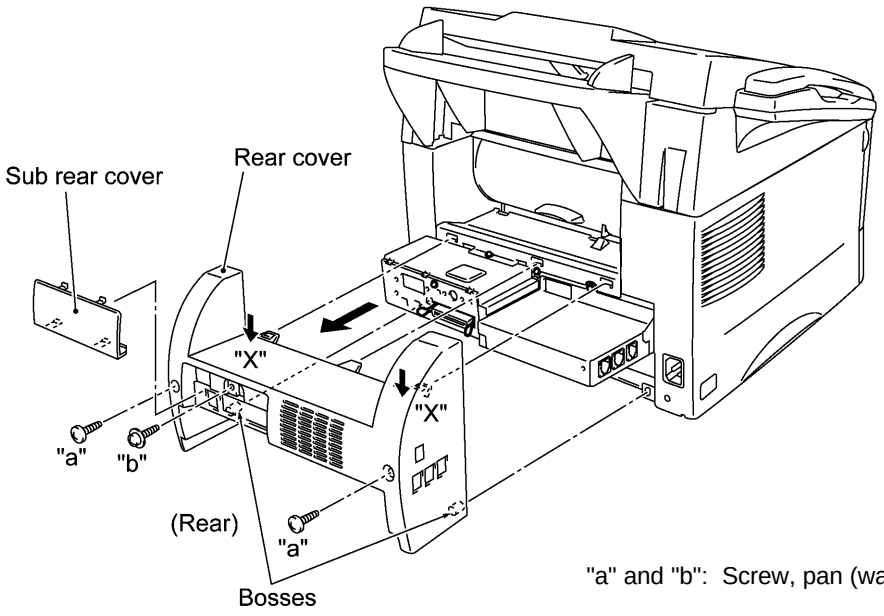

1.3 Control panel ASSY
1.4 Panel rear cover
- ADF parts
- NIP-related parts
- Document pressure bar
- Document rear sensor actuator
Document front sensor actuator
1.4 Control panel
- Control panel PCB ASSY (NOTE 1)
- FPC key
- LCD
1.1 Rear cover
1.10 Paper sub tray
1.28 Paper cassette
1.2 Access plates R and F
1.20 NCU shield
1.20 NCU PCB
*1 Provided on those models equipped with handset.
*2 Provided on those models without handset.
*3 Provided on those models supporting video capture.
*4 Provided on those models not supporting video capture.
*5 Provided on those models available with a 2nd paper cassette (as an option or standard).
(NOTE 1) The control panel PCB ASSY consists of a control panel PCB and document sensor PCB. On the former PCB is the document front sensor; on the latter PCB is the document rear sensor.
(NOTE 2) On the hook switch PCB is the hook switch sensor (mechanical switch).
(NOTE 3) On the heat-fixing unit is the heater thermistor.
(NOTE 4) The main PCB monitors the internal resistance of the in-casing temperature sensor (thermistor) attached to the main chassis.
(NOTE 5) On the paper ejection sensor PCB is the paper ejection sensor (photosensor).
(NOTE 6) On the engine PCB are these photosensors:
- Registration sensor
- Manual insertion sensor
- Cassette sensor
(NOTE 7) On the toner sensor (light-receiver) PCB is a light-sensitive transistor.
(NOTE 8) On the toner sensor (LED) PCB are an LED and cover sensor (photosensor).
1.7 Scanner frame ASSY
1.5 Document feed roller ASSY
1.5 Document ejection roller ASSY
1.6 CIS unit
1.5 Pinch rollers
1.7 Scanner motor
Scanner drive unit
Document take-in roller
Separation roller
Pressure rollers and leaf springs
Control panel locks
1.8 Top cover
- Exit roller
- Speaker
- Document guides
1.9 Handset mount and hook switch PCB *1
Side cover *2
(NOTE 2)
1.21 Bottom plate
1.21 Main PCB
(NOTE 4)
1.21 Paper ejection sensor PCB
(NOTE 5)
1.22 Low-voltage power supply PCB and power inlet
1.23 Inner insulation film
1.21 Bottom insulation film
1.23 Engine PCB
(NOTE 6)
1.23 High-voltage power supply PCB
1.23 2nd cassette relay PCB *5
1.11 VC cover, VC bracket, and VC connector PCB *3
1.12 Front cover
Front sub cover *4
1.14 Main cover
1.13 Outer chute
1.13 Paper pinch rollers
1.15 Switch cover
1.16 Laser unit
1.17 Heat-fixing unit
- Heater roller
- FU lamp
(NOTE 3)
1.18 Fan
1.19 Drive gear ASSY
- Main motor ASSY
1.19 Develop joint and front cover link (as cover sensor actuator)
1.24 Toner sensor (light-receiver) PCB
(NOTE 7)
1.25 Gears
(Inner gear 54, gear 45 set P/R, gear 20 P/R, gear 40/54, gear 45 set F/R, and gear 20 F/R)
1.26 Paper feed roller ASSY
1.24 Toner sensor (LED) PCB
(NOTE 8)
1.25 Paper pick-up roller
1.27 Clutch levers and cassette guide L
1.27 Solenoid

1.1 Rear Cover

(1) FAX8350P and FAX8750P: Remove the sub rear cover.

(2) Remove the three screws (two "a" and one "b") from the rear cover. Screw "b" is provided on those models available with a 2nd paper cassette (as an option or standard).

(3) Lightly pressing sections "X," pull out the rear cover.



"a" and "b": Screw, pan (washer) M4x10DB

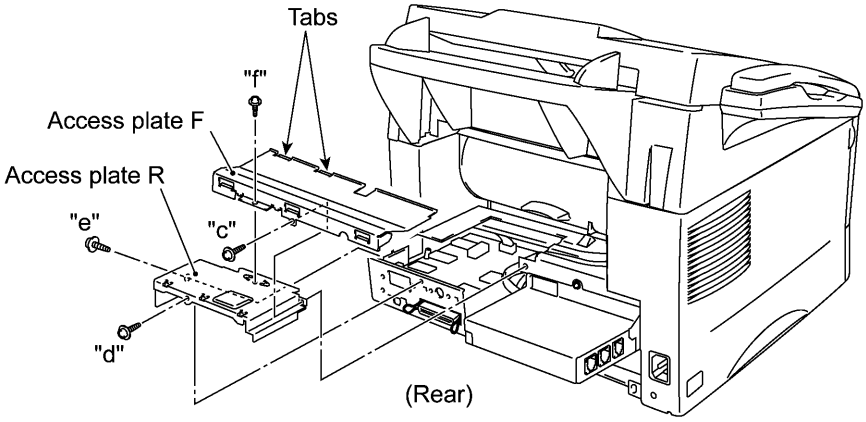
1.2 Access Plates R and F

(1) Remove screw "c" that secures access plates R and F together to the main chassis.

(2) Remove screws "d" and "e" from access plate R.

(3) Take out access plates R and F together.

(4) Remove screw "f" to separate those access plates.



"c," to "f": Taptite, cup S M3x6
(Tightening torque: 0.5 N•m)

Reassembling Notes

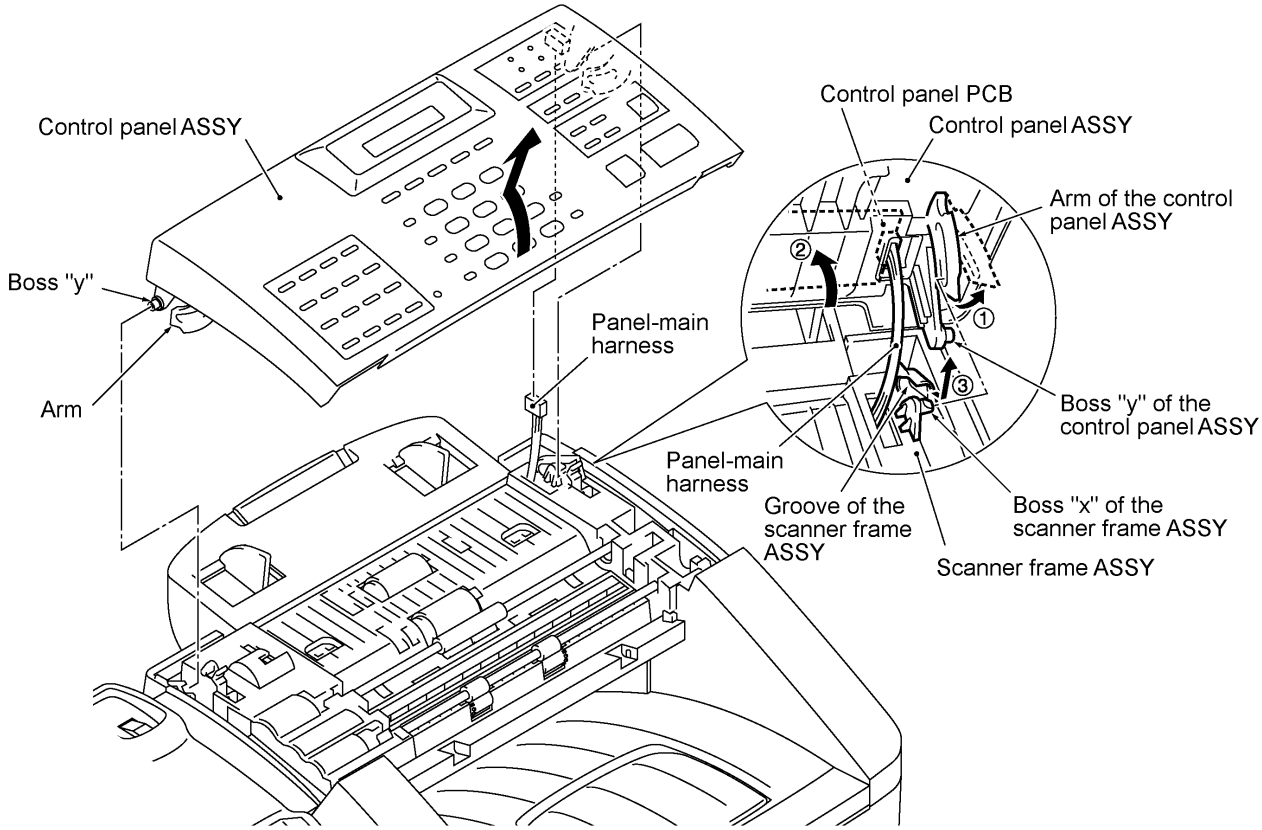
- When reinstalling access plate F, fit the two tabs provided on the front end underneath the center edge of the main chassis.

1.3 Control Panel ASSY

(1) Slightly open the control panel ASSY.

(2) Push the right and left arms of the control panel ASSY outwards (in the direction of arrow) with your thumbs, then open the control panel ASSY further (arrow to unhook those arms from bosses "x" provided on the scanner frame ASSY) while sliding the control panel ASSY to the front (arrow to release its bosses "y" from the grooves of the scanner frame ASSY).

(3) Slightly lift up the control panel ASSY and disconnect the panel-main harness from the control panel PCB.



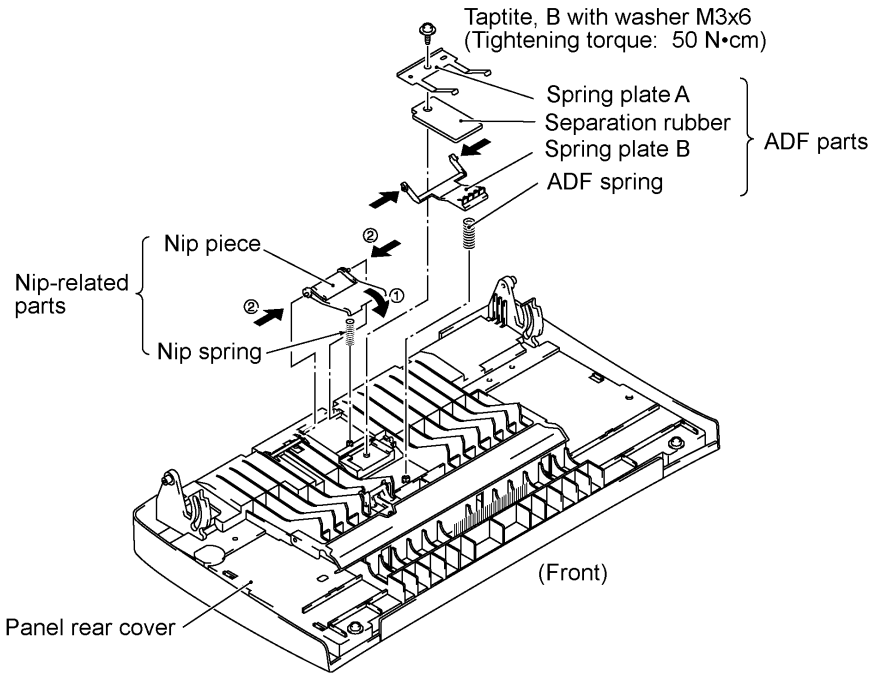
1.4 Panel Rear Cover and Control Panel

(1) Place the control panel ASSY upside down.

If you do not need to remove the ADF parts, nip-related parts, document pressure bar, or document rear sensor actuator, or anti-static brush, skip to step (7).

(2) To remove the ADF parts (spring plates, separation rubber and spring), remove the screw.

(3) To remove the nip-related parts (nip piece and spring), push down the nip piece (arrow) and then press either side of the piece inwards (arrow).

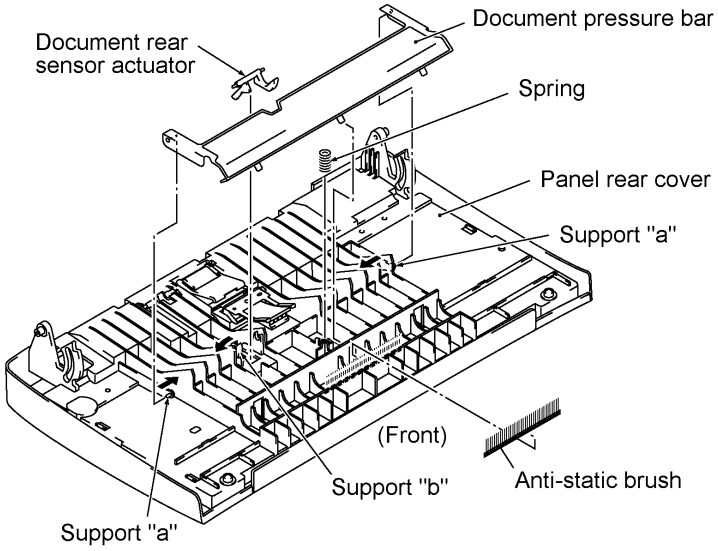


(4) To remove the document pressure bar, press either of supports "a" provided on the panel rear cover inwards and then lift the pressure bar up and towards the rear to release the three tabs from the cutouts provided in the panel rear cover. The spring also comes off.

(5) To remove the document rear sensor actuator, pull support "b" on the panel rear cover outwards.

(6) To replace the anti-static brush, peel it off.

NOTE: Once removed, it will become unusable and a new part will have to be put back in.



(7) Remove the two screws from the panel rear cover.

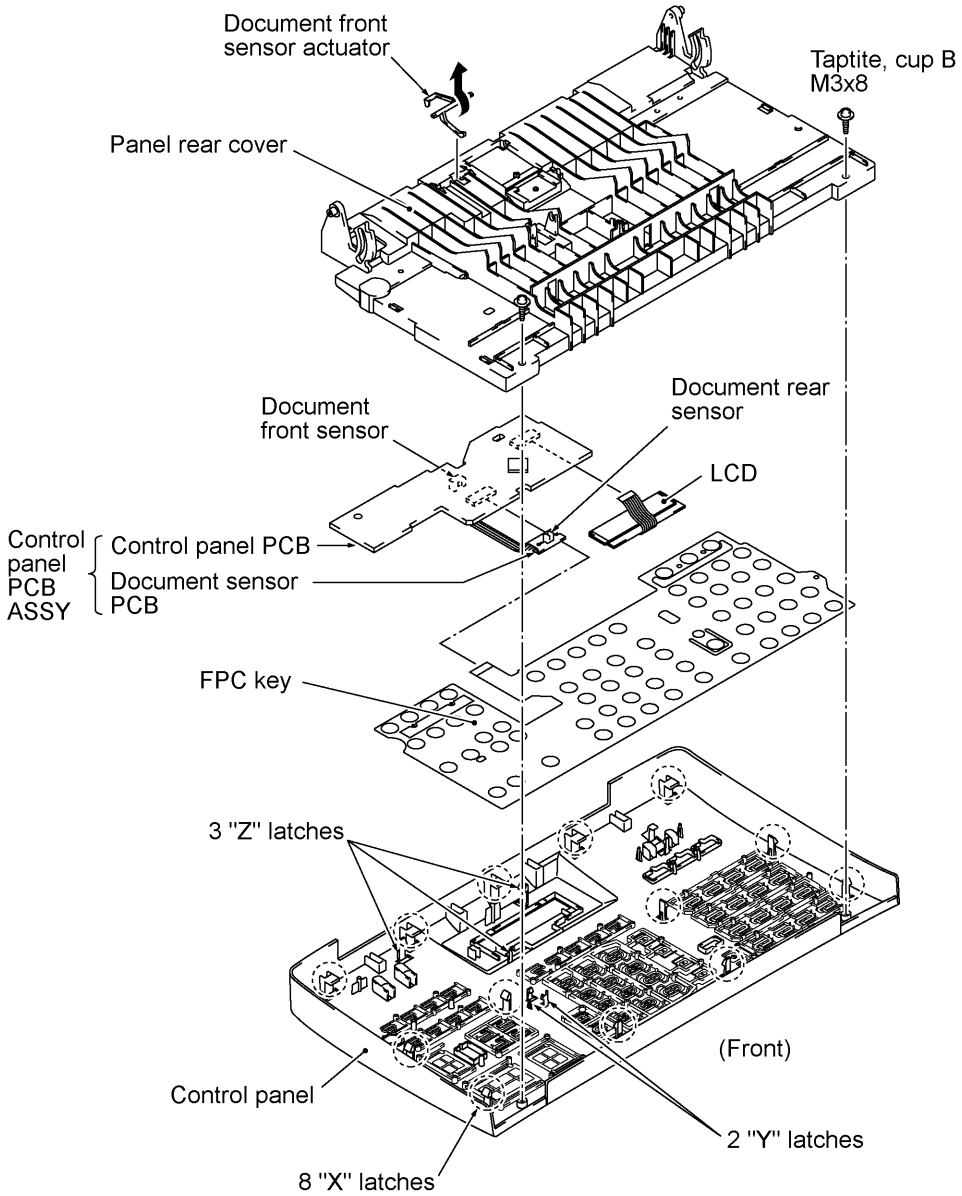
(8) Unhook the panel rear cover from eight "X" latches provided on the control panel and lift up the panel rear cover.

(9) Fully turn the document front sensor actuator to the rear and take it out.

(10) Unhook the document sensor PCB from two "Y" latches.

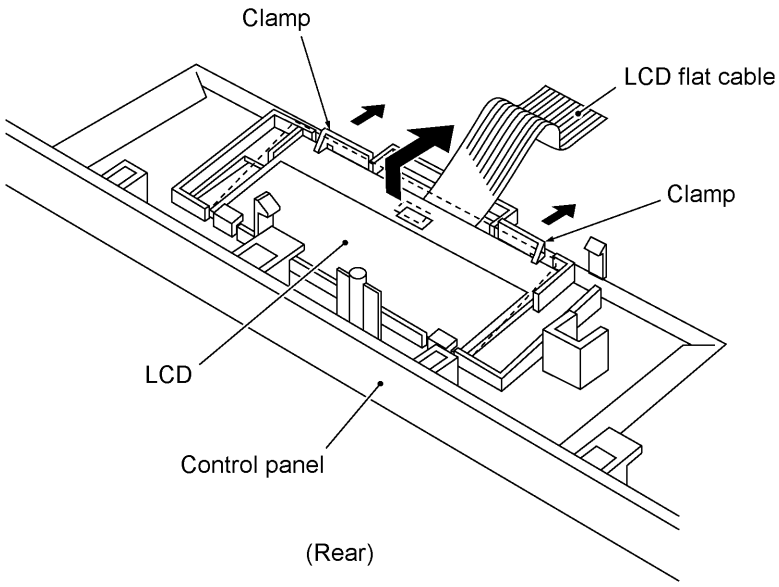
(11) Unhook the control panel PCB from three "Z" latches.

(12) Slightly lift up the control panel PCB, then unlock the LCD cable connector and disconnect the LCD flat cable. Next, unlock the FPC key connector and disconnect the FPC key.



(13) As shown below, slightly pull the clamps to the front and take out the LCD while pulling the LCD flat cable gently.

NOTE: Do not take out the LCD except when the LCD is defective and requires replacement.



Reassembling Notes

- Before reinstalling the LCD to the control panel, wipe fingerprints or dust off the LCD surface and control panel window with a soft cloth.
- A new LCD is covered with a protection sheet. Before installing it, remove the protection sheet.

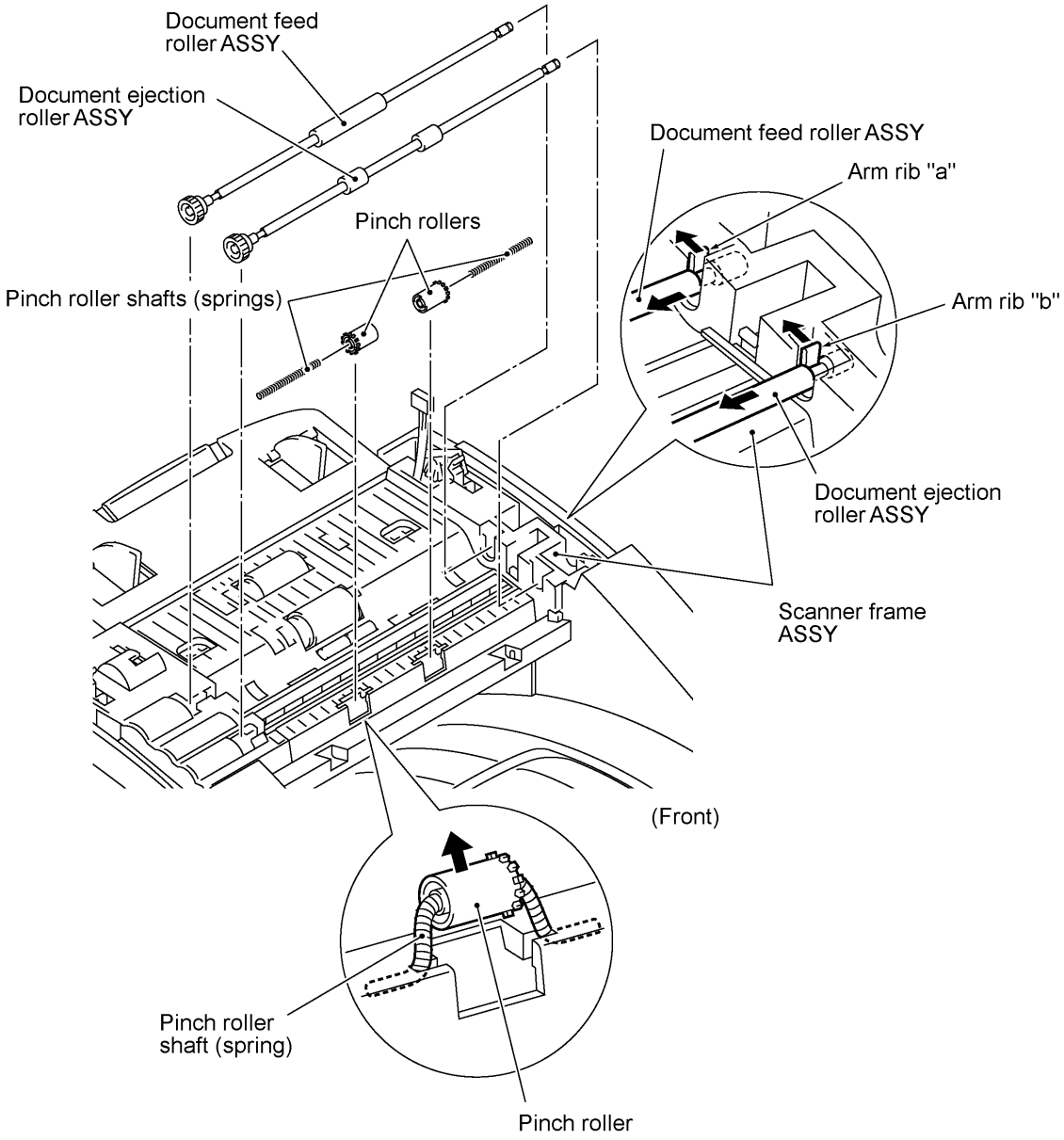
1.5 Document Feed Roller ASSY, Document Ejection Roller ASSY, and Pinch Rollers

(1) Lightly push arm rib "a" to the rear, then pull the document feed roller ASSY to the left and upwards.

(2) Lightly push arm rib "b" to the rear, then pull the document ejection roller ASSY to the left and upwards.

NOTE: Take care not to break the arm ribs. They may easily break.

(3) Pull up the pinch rollers and their shafts (springs).

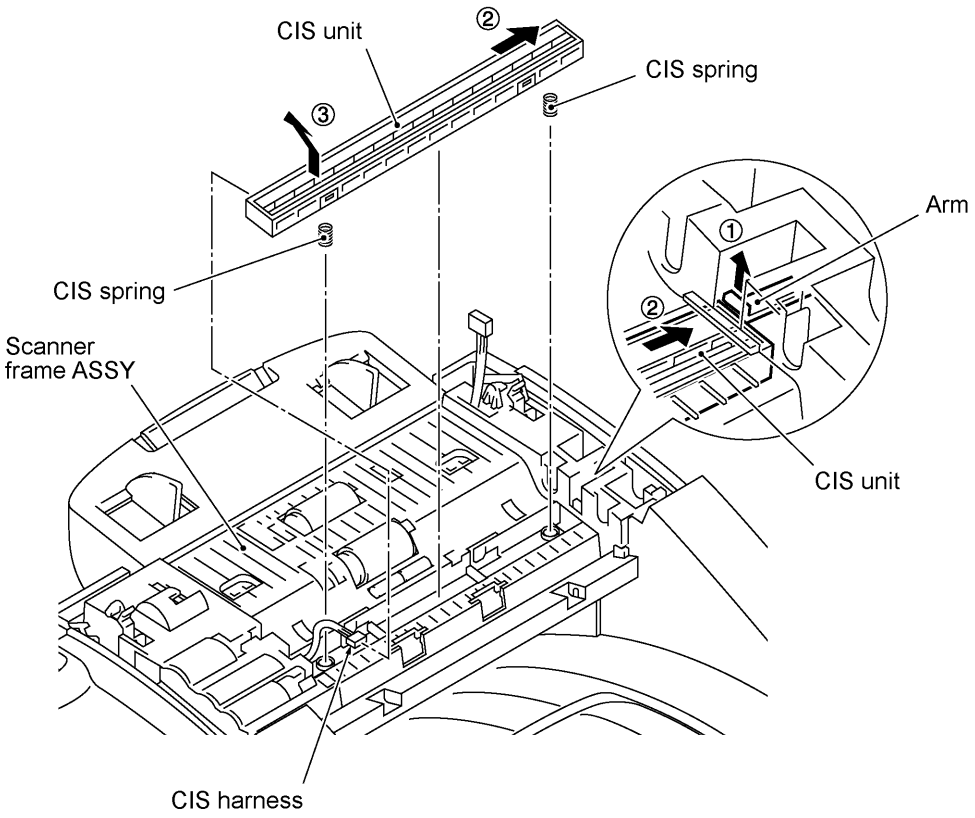


1.6 CIS Unit

(1) Lightly pull up the arm, move the CIS unit to the right, and lift up the left edge of the CIS unit gently.

NOTE: Do not lift up the left edge exceeding 30 mm to prevent the CIS harness connector on the CIS unit from getting broken.

(2) While holding up the CIS unit, disconnect the CIS harness. The CIS springs also come off.



Reassembling Notes

- When reinstalling the CIS unit, first connect the CIS harness, insert the right end under the arm of the scanner frame, put the CIS unit into the scanner frame, and then move it to left.

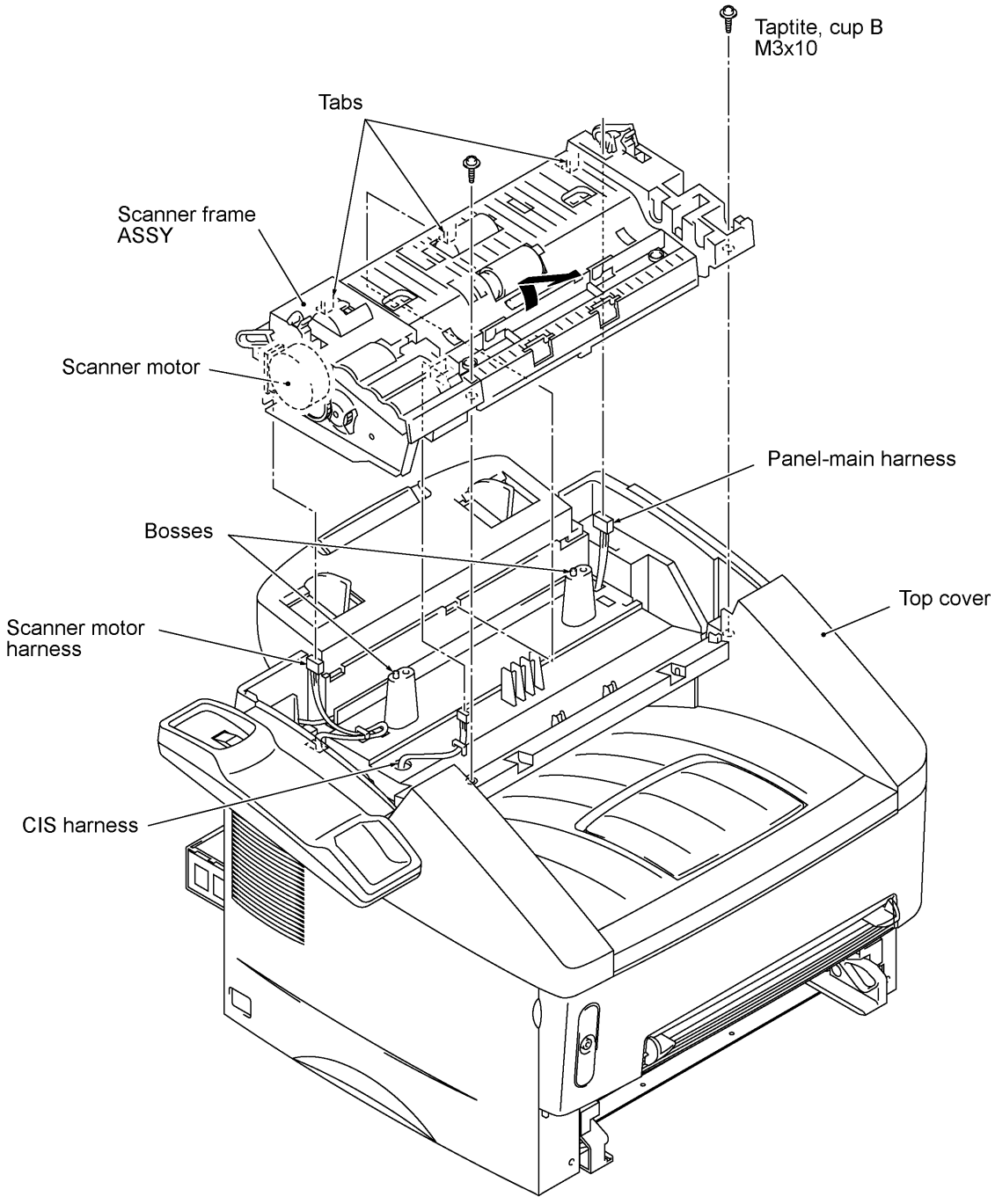
1.7 Scanner Frame ASSY (Scanner Motor, Scanner Drive Unit, Document Take-in Roller, Separation Roller, Pressure Rollers, and Control Panel Locks)

(1) Remove the two screws from the scanner frame ASSY.

(2) Lift up the front edge of the scanner frame ASSY and pull the ASSY towards you to release the three tabs provided on the rear end from the top cover.

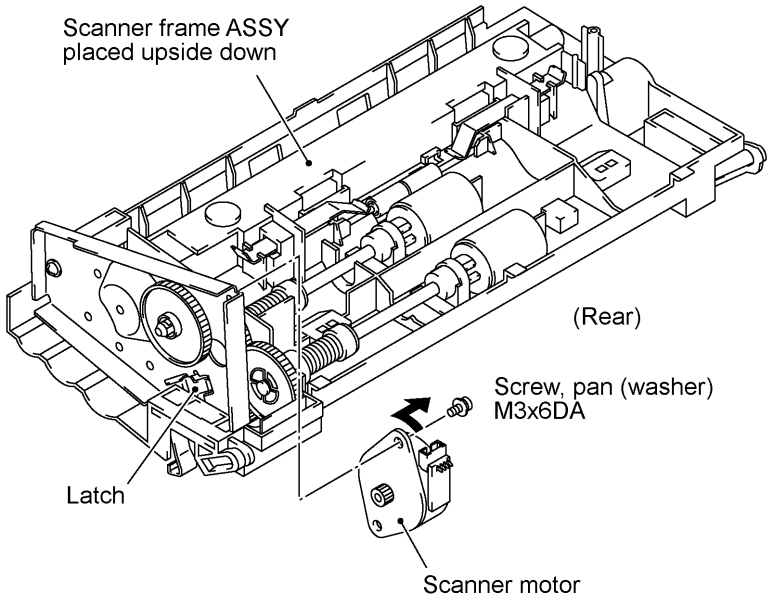
NOTE: If the CIS unit is mounted, do not lift up the scanner frame ASSY exceeding 30 mm to prevent the CIS harness connector on the CIS unit from getting broken.

(3) Hold up the ASSY and disconnect the scanner motor harness (and the CIS harness if the CIS is mounted).

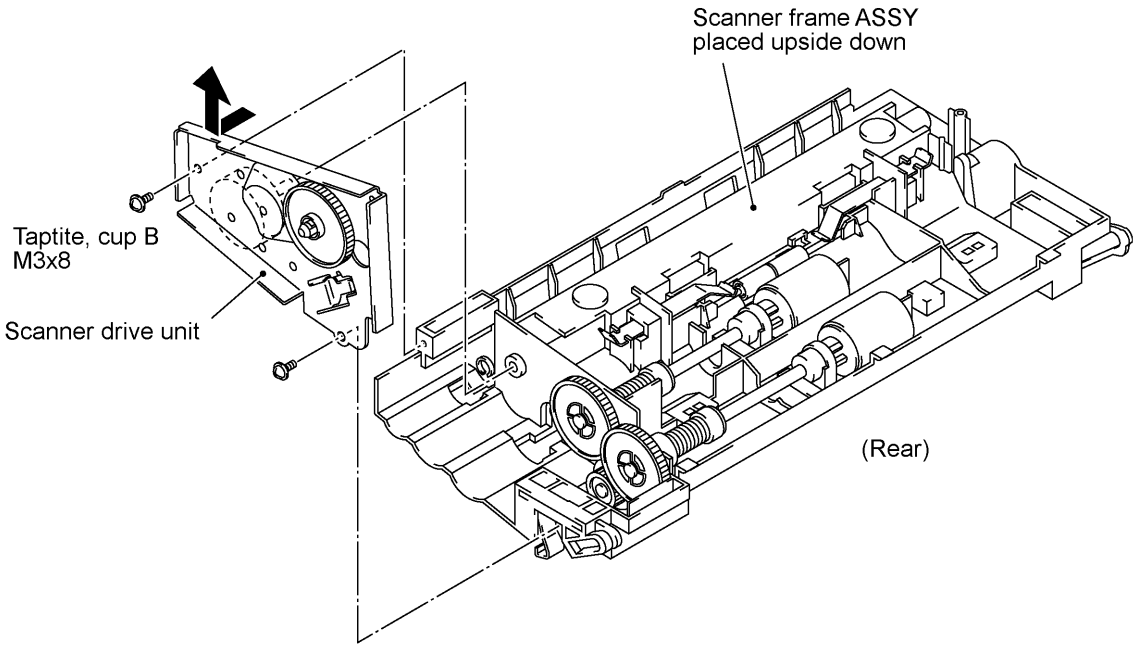


(4) Turn the scanner frame ASSY upside down.

(5) Remove the screw from the scanner motor and turn the motor (as shown below) to release it from the latch.



(6) Remove the two screws and take off the scanner drive unit.

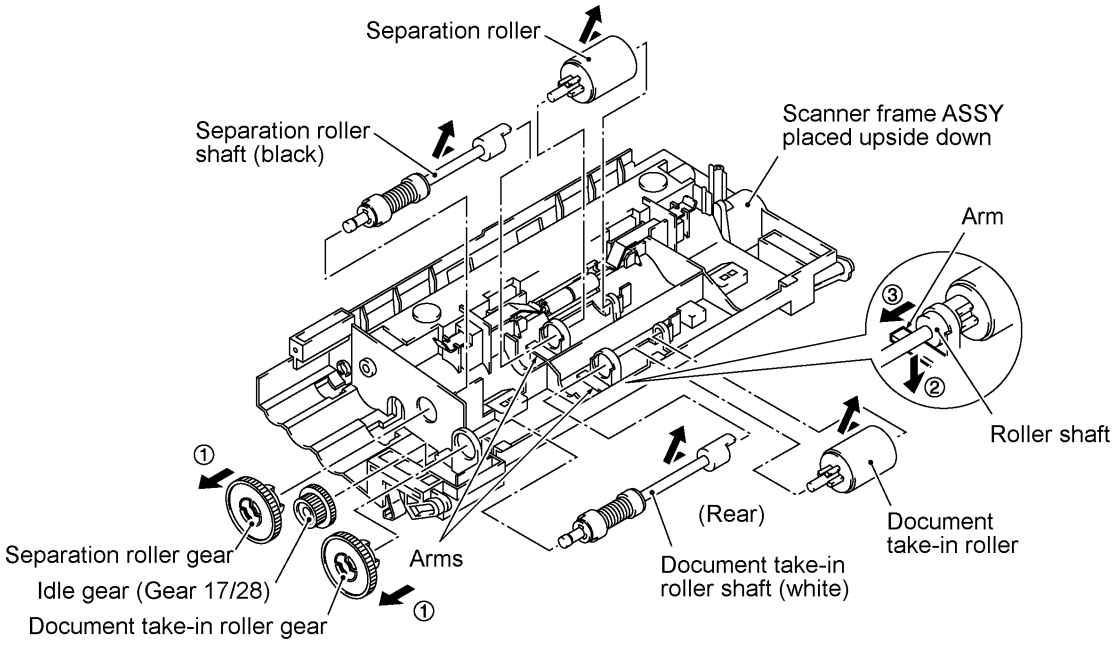


(7) Remove the document take-in roller gear (in the direction of arrow) by pulling its pawls outwards. Slightly push down the arm (arrow) and shift the document take-in roller shaft to the left (arrow) and take it up.

Then shift the document take-in roller to the left and take it up.

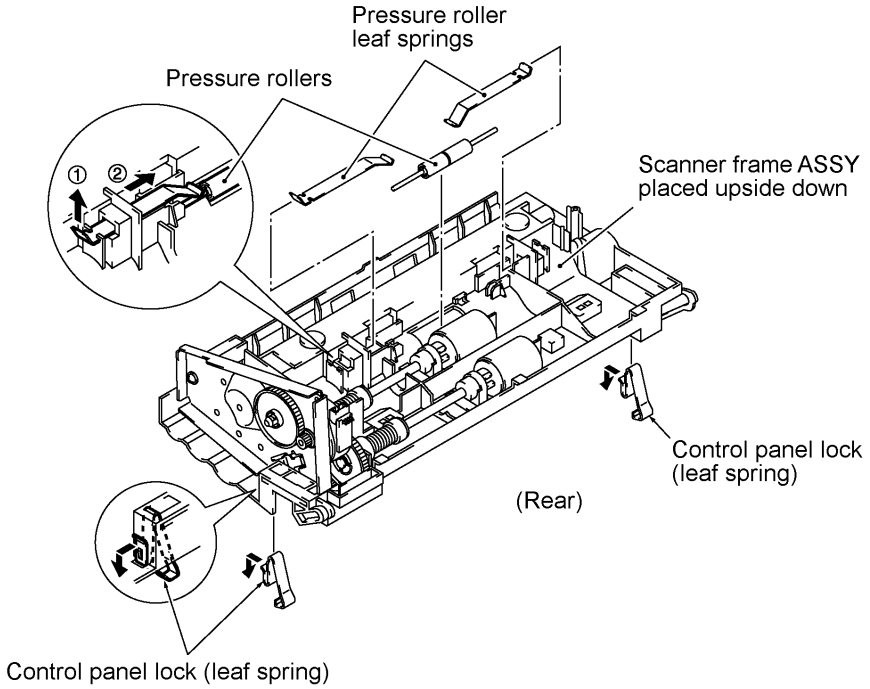
(8) Remove the separation roller gear (in the direction of arrow) by pulling its pawls outwards. Slightly push down the arm (arrow) and shift the separation roller shaft to the left (arrow) and take it up.

Then shift the separation roller to the left and take it up.



(9) Remove the two pressure roller leaf springs by pulling them in the direction of arrows and in this order as shown below. Then remove the pressure rollers and shaft.

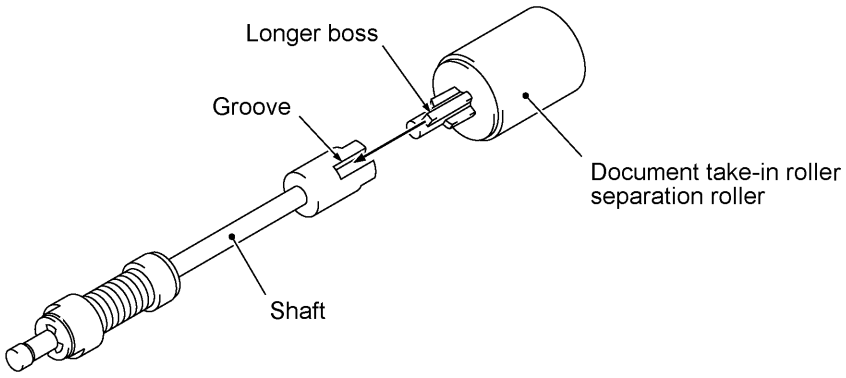
(10) Remove the two control panel locks (leaf springs) with a flat screwdriver in the direction shown below.



Reassembling Notes

- The document take-in roller and separation roller are compatible with each other. Their gears are also compatible with each other. However, their shafts are not compatible. The document take-in roller shaft should be a white one; the separation roller shaft should be a black one.

  When setting these shaft to their rollers, fit the groove provided in each shaft over the longer boss provided on each roller.

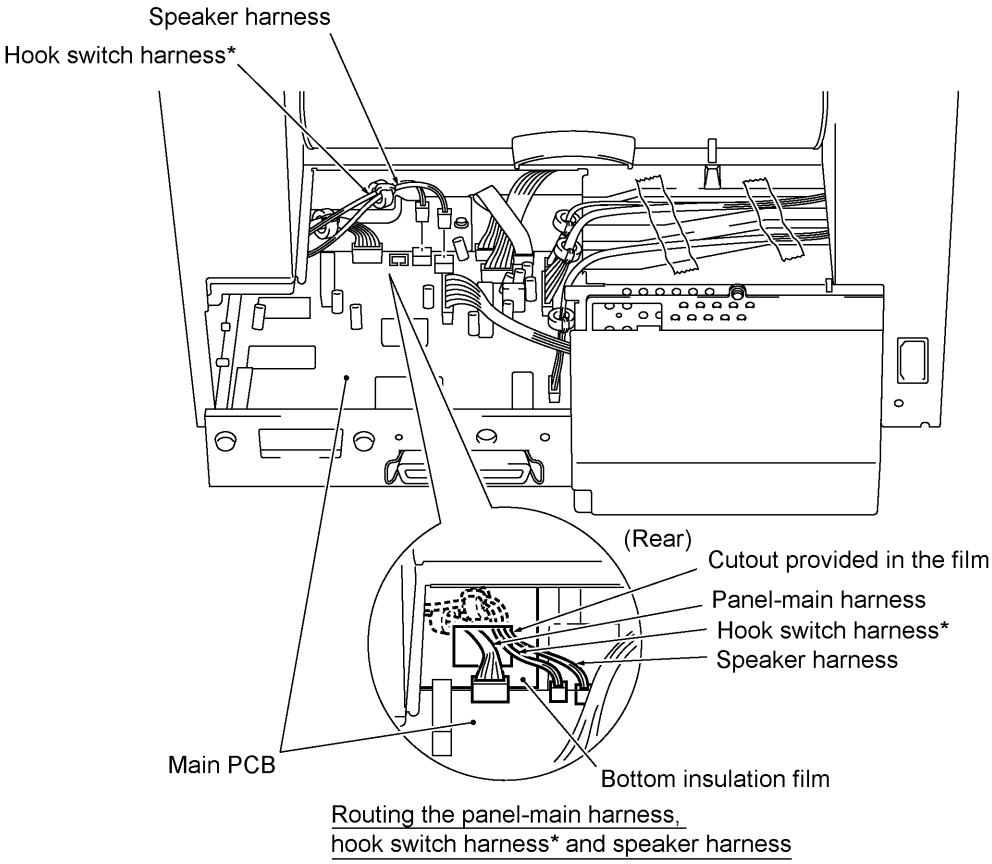


- When reinstalling the scanner motor, fit it in the latch provided on the scanner frame with the connector facing up and then secure it with the screw. (See page IV-12.)
- When setting the scanner frame ASSY back into place, be sure to
  - route the scanner motor harness through the hook on the top cover as shown on page IV-11 and connect it to the scanner motor,
  - route the CIS harness through the hook on the top cover as shown on page IV-11 and connect it to the CIS unit (if the CIS unit is not mounted, route the CIS harness through the left-hand cutout provided in the scanner frame ASSY), and
  - route the panel-main harness through the right-hand cutout provided in the scanner frame ASSY.

1.8 Top Cover (Exit Roller, Speaker, and Document Guides)

(1) Disconnect the hook switch harness* and speaker harness from the main PCB.

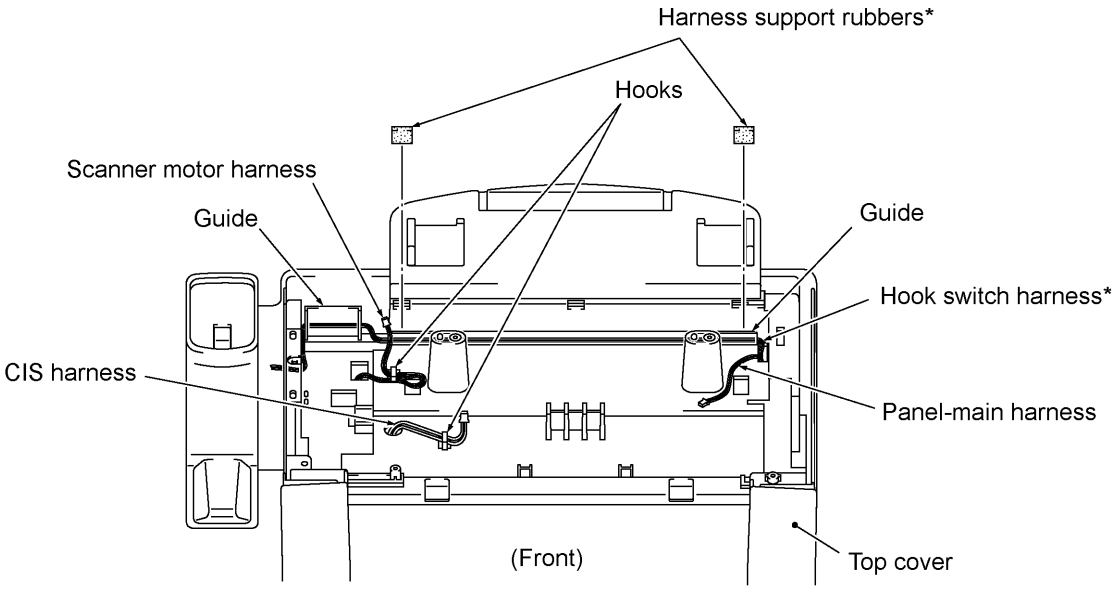
*For models equipped with a handset



Routing the panel-main harness, hook switch harness* and speaker harness

(2) Remove the harness support rubbers to release the hook switch harness*.

(3) Release the scanner motor harness and CIS harness from the hooks provided on the top cover.

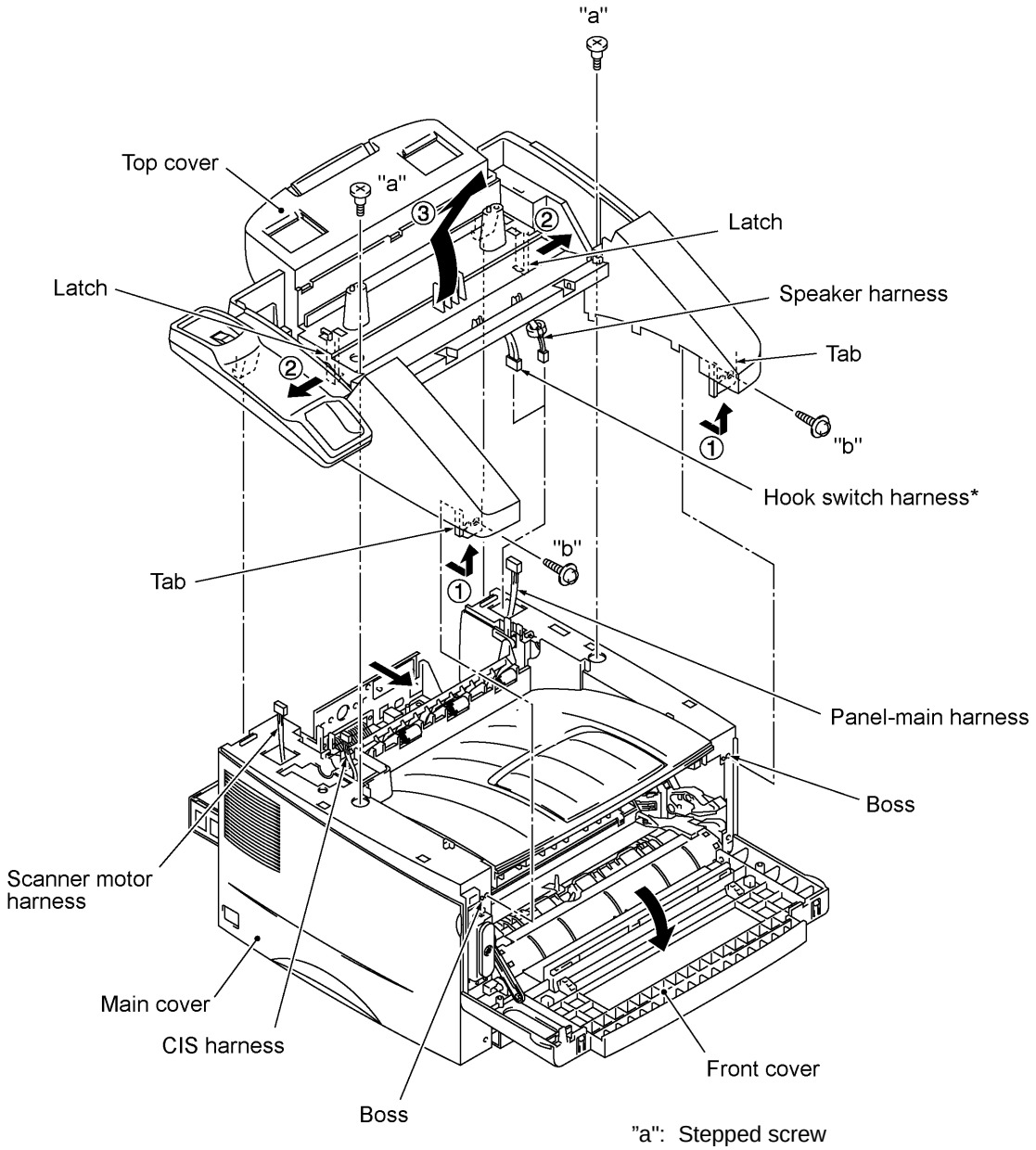


(4) Remove two screws "a."

(5) Open the front cover and remove two screws "b."

(6) Pull the tabs of the top cover to the front and upwards (in the direction of arrows) to release them from the bosses provided on the main cover.

(7) Insert the tip of a flat screwdriver and unhook the latches of the top cover (in the direction of arrows), then lift up the top cover (arrow).



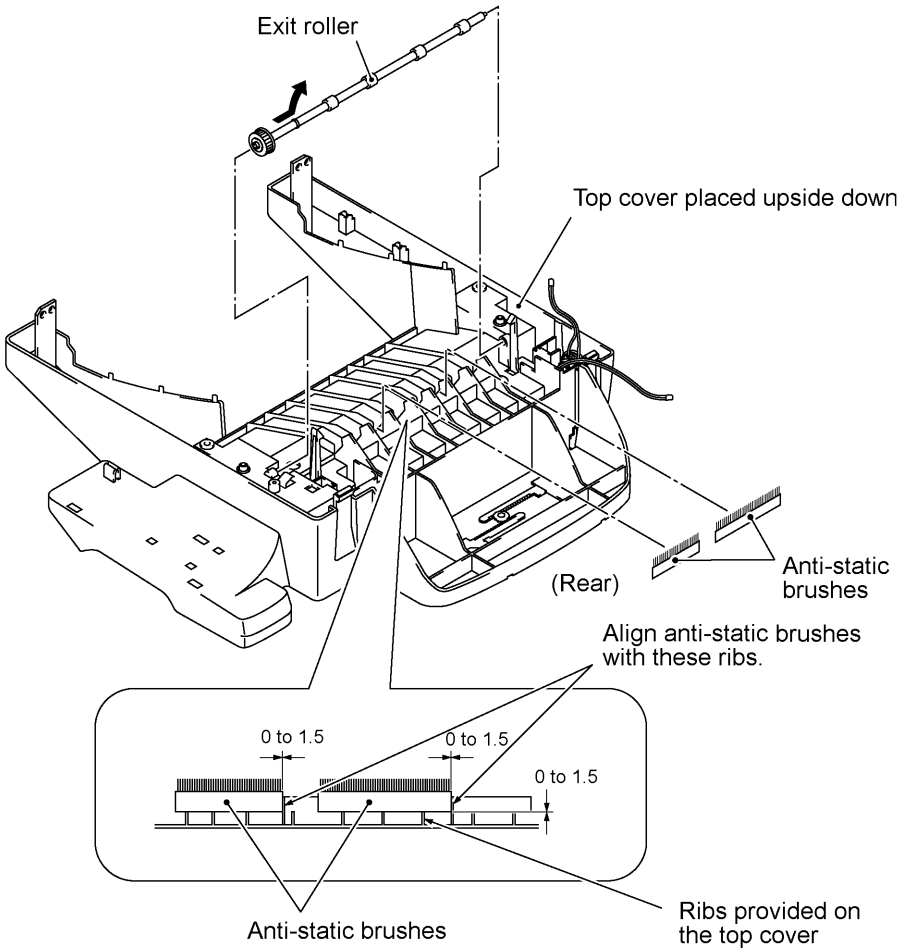
"a": Stepped screw
"b": Taptite, cup S M3x10

*For models equipped with a handset

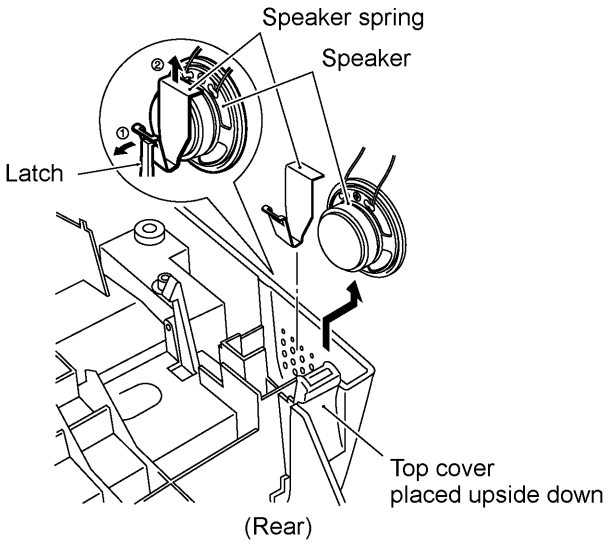
(8) Turn the top cover upside down.

(9) Peel off anti-static brushes.
NOTE: Once removed, they will become unusable and new parts will have to be put back in.

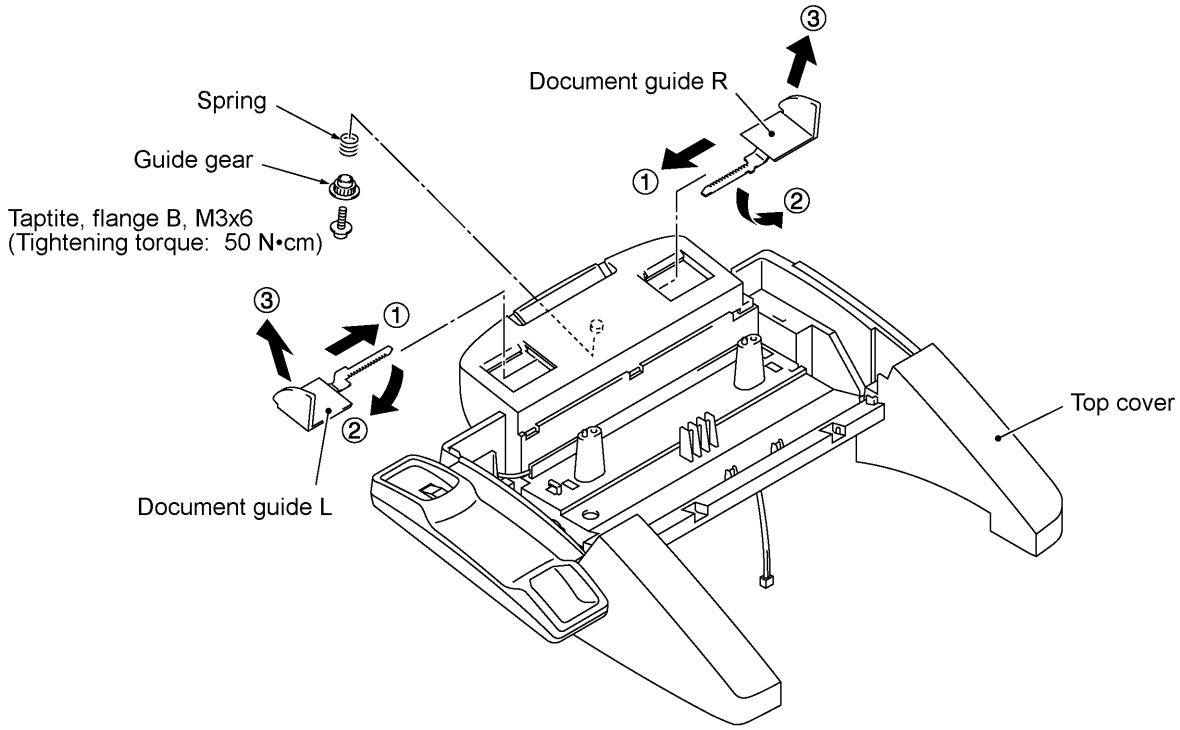
(10) As shown below, warp the gear-equipped end of the exit roller and remove it.



(11) Unhook the latch from the speaker spring and pull it up. (To make this easier, insert the tip of a flat screwdriver from the bottom of the top cover placed upside down.) Lift up the speaker.

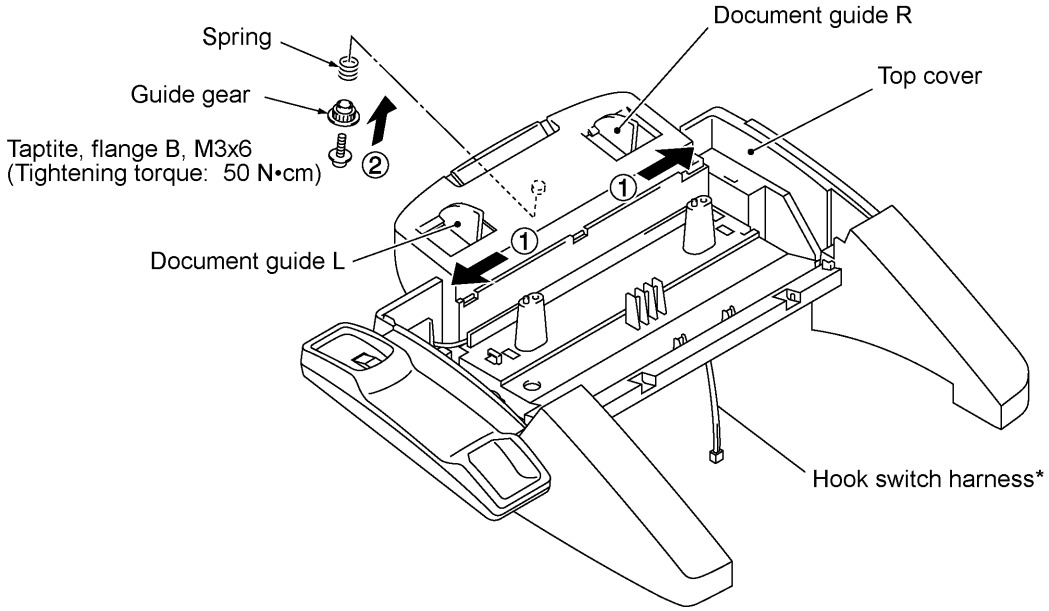


(12) Remove the screw from the inside of the top cover, then remove the document guides L and R as shown below.



Reassembling Notes

- When reinstalling the paper guides, set them into place, pull them outwards (in the direction of arrows), and then secure them with the spring, guide gear, and screw (arrow).



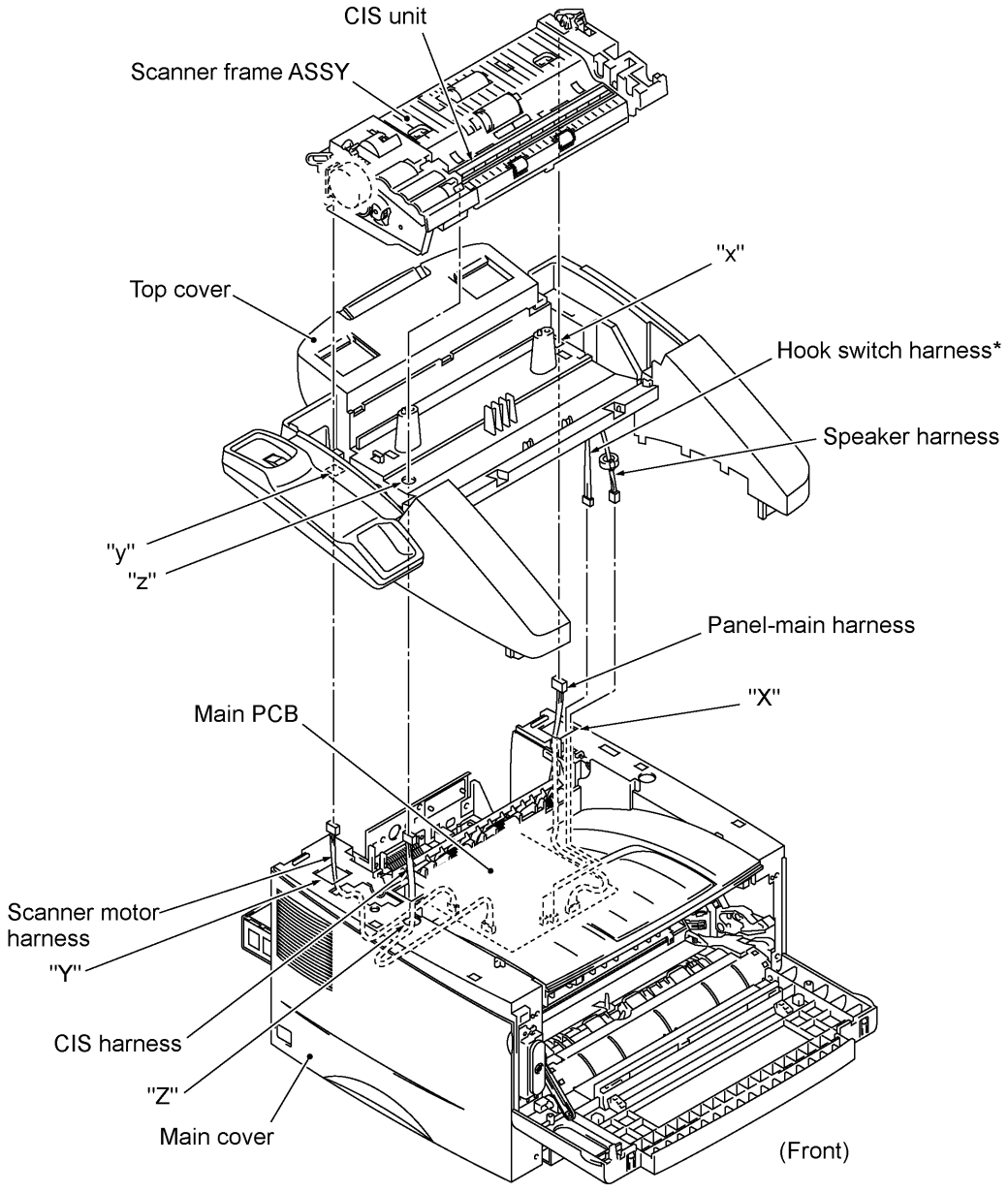
*For models equipped with a handset

- When setting the top cover back into place:
  - at the right-hand side, put the speaker harness and hook switch harness* into square cutout "X" provided in the right rear corner of the main cover. Raise the panel-main harness coming through the main cover up and through cutout "x" provided in the top cover (through which the hook switch harness* passes).

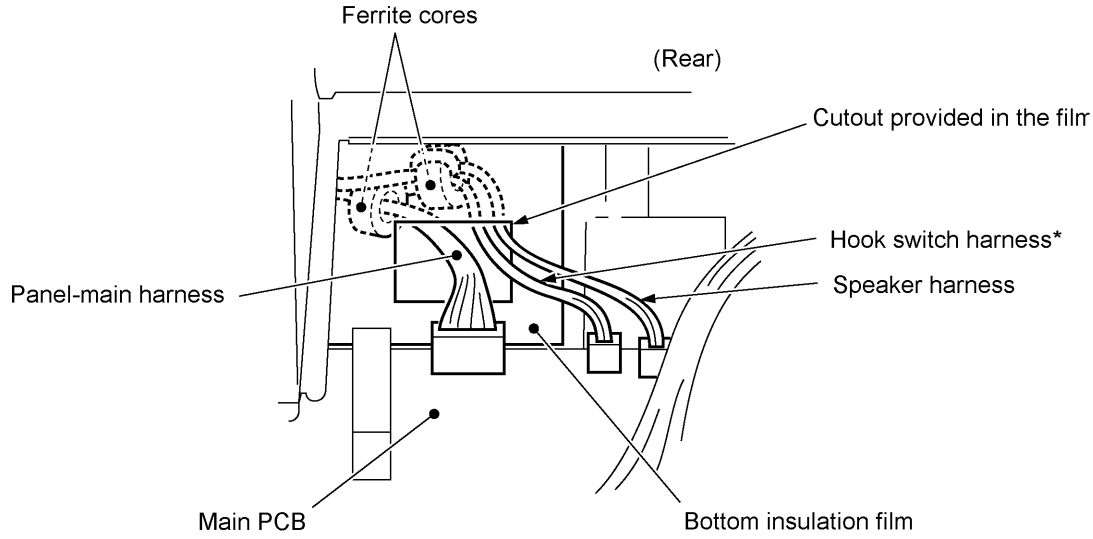
    If the panel-main harness has been taken out from the machine, first put it into square cutout "X" with the core-equipped end down and then raise its upper end up and through cutout "x" provided in the top cover.
  - at the left-hand side, pull up the scanner motor harness and CIS harness and raise them up and through square and round cutouts ("y" and "z") provided in the top cover, respectively.

    If the scanner motor harness or CIS harness has been taken out from the machine, first put it into the respective cutout ("Y" or "Z") provided in the left rear corner of the main cover with the core-equipped end down and then raise its upper end up and through the respective cutout "y" or "z."

*For models equipped with a handset



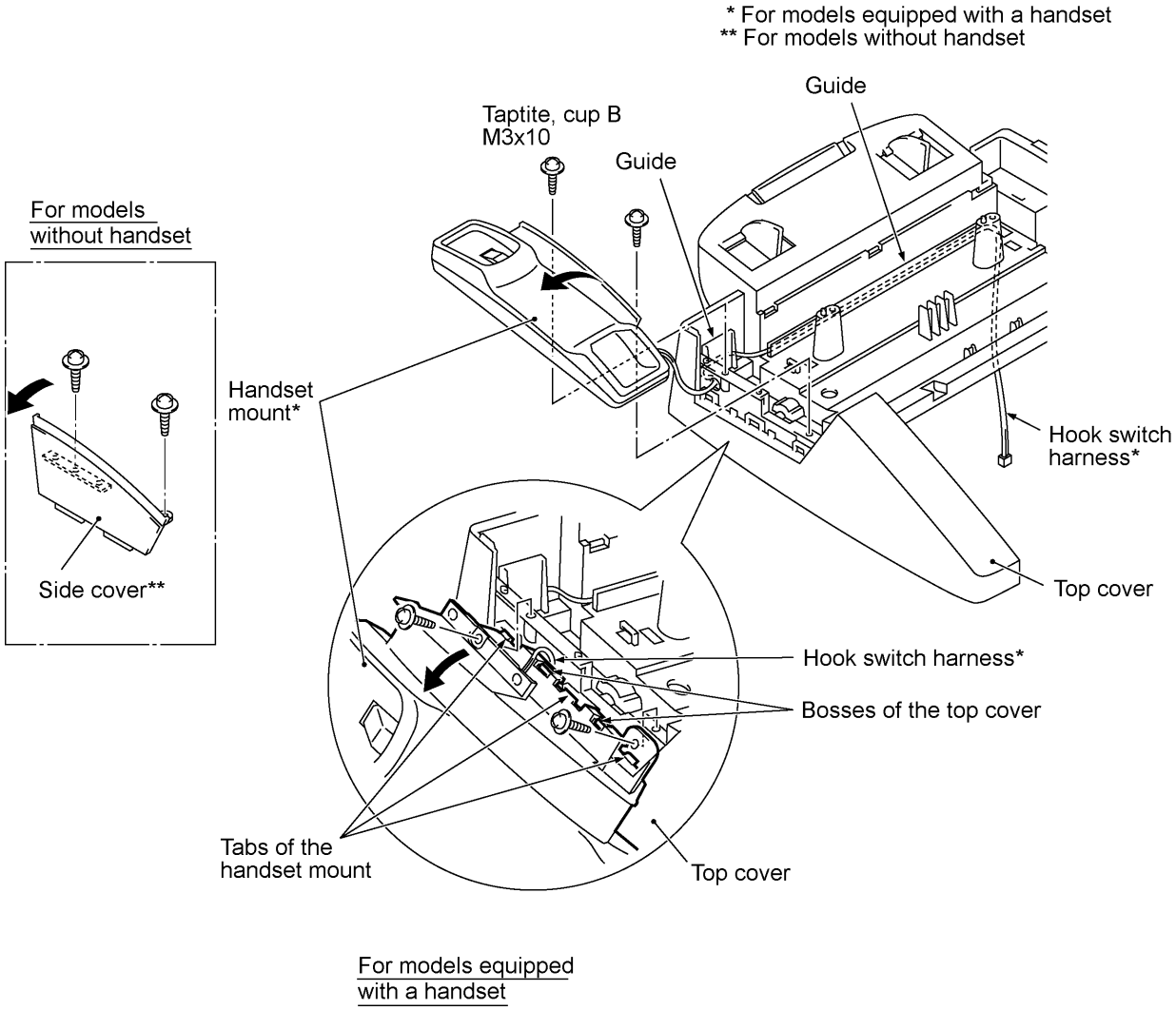
- When connecting the speaker harness and hook switch harness* to the main PCB:
  - route the hook switch harness* through the ferrite core of the speaker harness,
  - make sure that the panel-main harness, speaker harness, and hook switch harness* are routed through the cutout provided in the bottom insulation film, and
  - make sure that the ferrite cores of the pane-main harness and speaker harness lie inside the bottom insulation film.



1.9 Handset Mount and Hook Switch PCB (for models equipped with a handset) Side Cover (for models without handset)

(1) Remove the two screws from the handset mount* or side cover**.

(2) Twist the handset mount* or side cover** so that it tilts over to the left and its upper end works out of the bosses provided on the top cover.

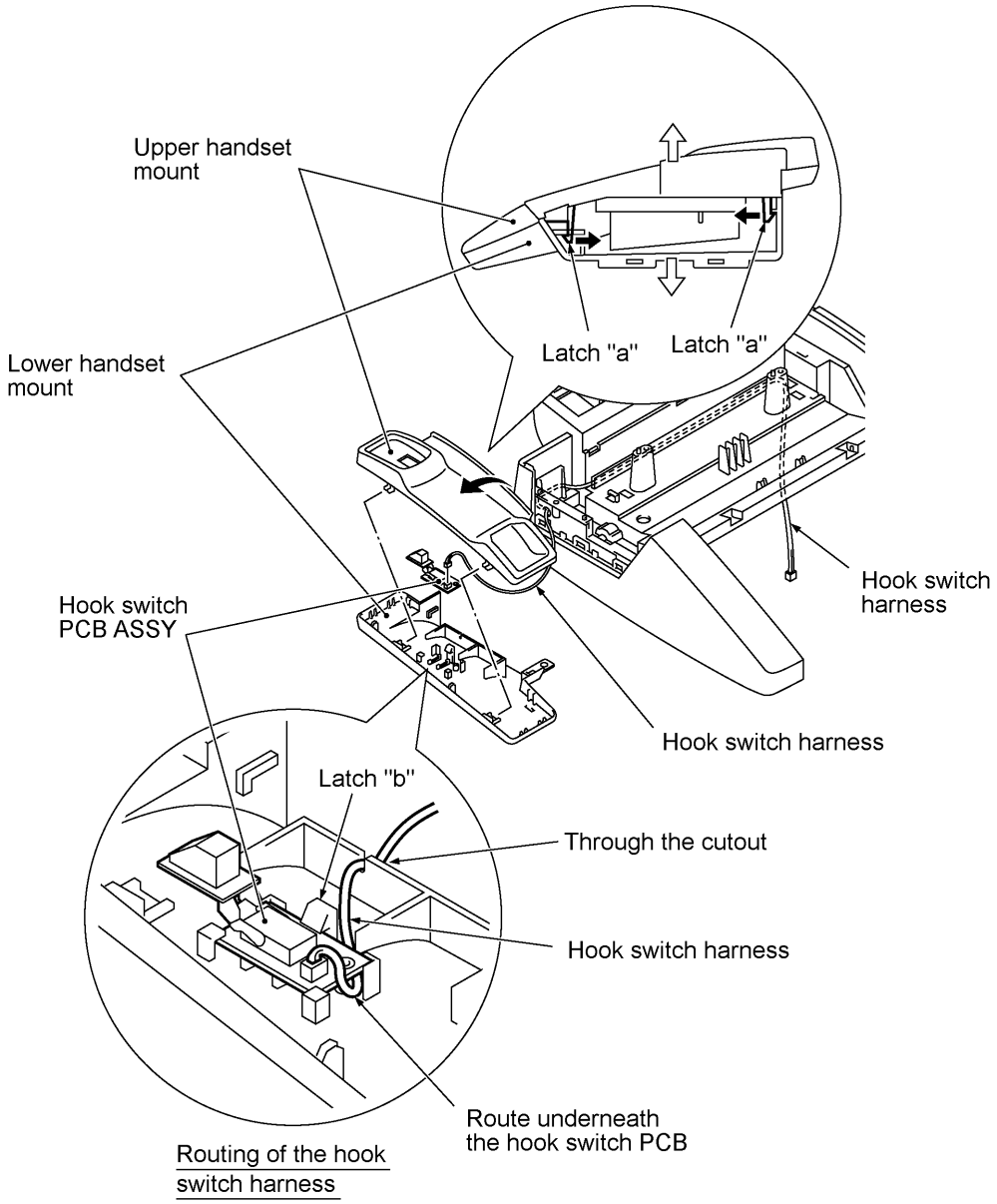


The following steps should apply to those models equipped with a handset:

(3) Disassemble the handset mount by unhooking two latches "a" of the upper handset mount with a flat screwdriver.

(4) Remove the hook switch PCB ASSY by unhooking latch "b."

(5) Disconnect the hook switch harness from the hook switch PCB.



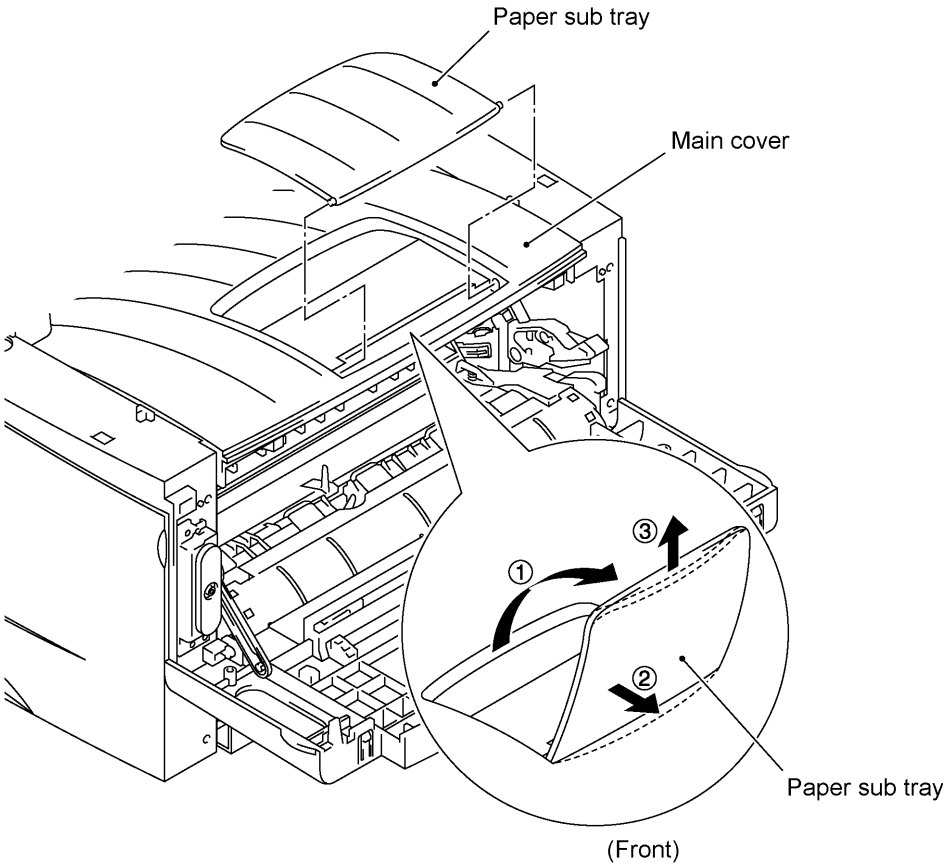
Reassembling Notes

- When assembling the upper and lower handset mounts, route the hook switch harness underneath the hook switch PCB and through the cutout as shown above. Take care not to pinch the harness between the upper and lower mounts.
- Make sure that the hook switch harness is routed along the guides on the top cover.

1.10 Paper Sub Tray

(1) Turn the paper sub tray up (in the direction of arrow).

(2) Warp the sub tray and lift it up (arrows and).

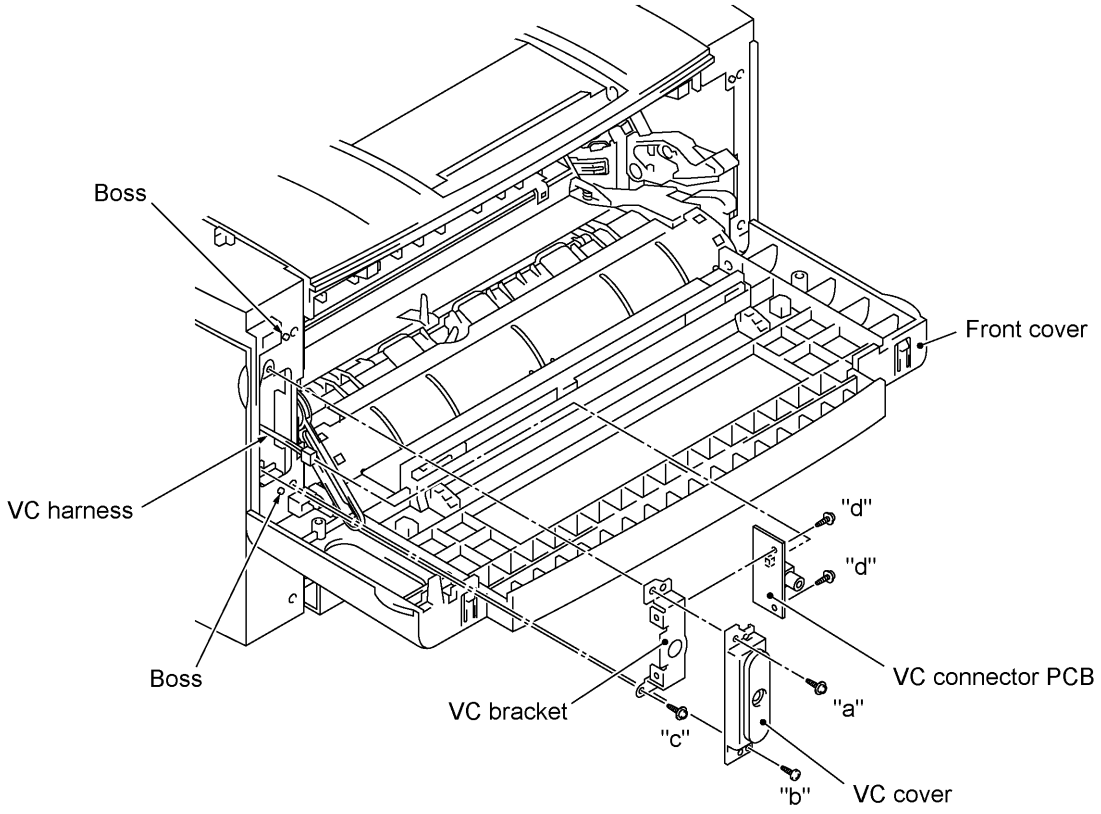


1.11 VC Cover, VC Bracket, and VC Connector PCB (for models supporting video capture)

(1) Remove two screws ("a" and "b"), then take off the VC cover.

(2) Remove screw "c," take out the VC bracket together with the VC connector PCB, and disconnect the VC harness.

(3) Remove two screws "d," then take off the VC connector PCB.



"a": Taptite, cup S M3x10
"b": Taptite, bind S M3x8
"c" and "d": Taptite, cup S M3x6

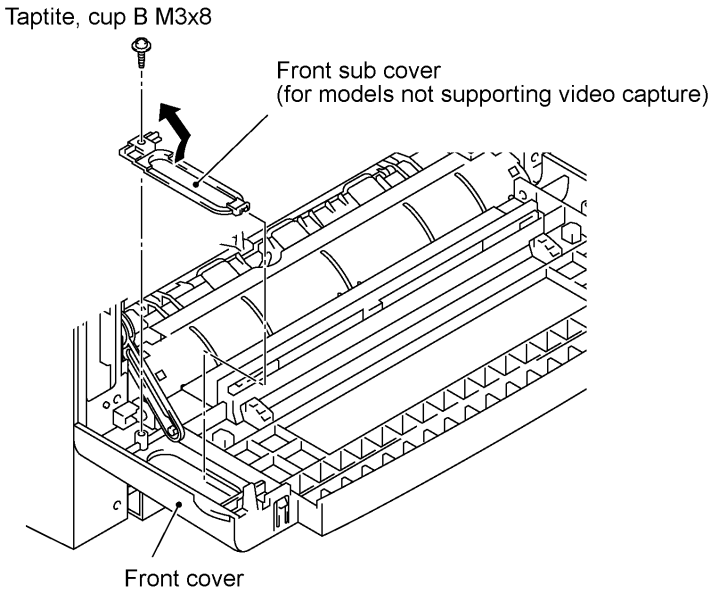
Reassembling Notes

- The routing of the VC harness is shown on page IV-27.

1.12 Front Cover

Front Sub Cover (for models not supporting video capture)

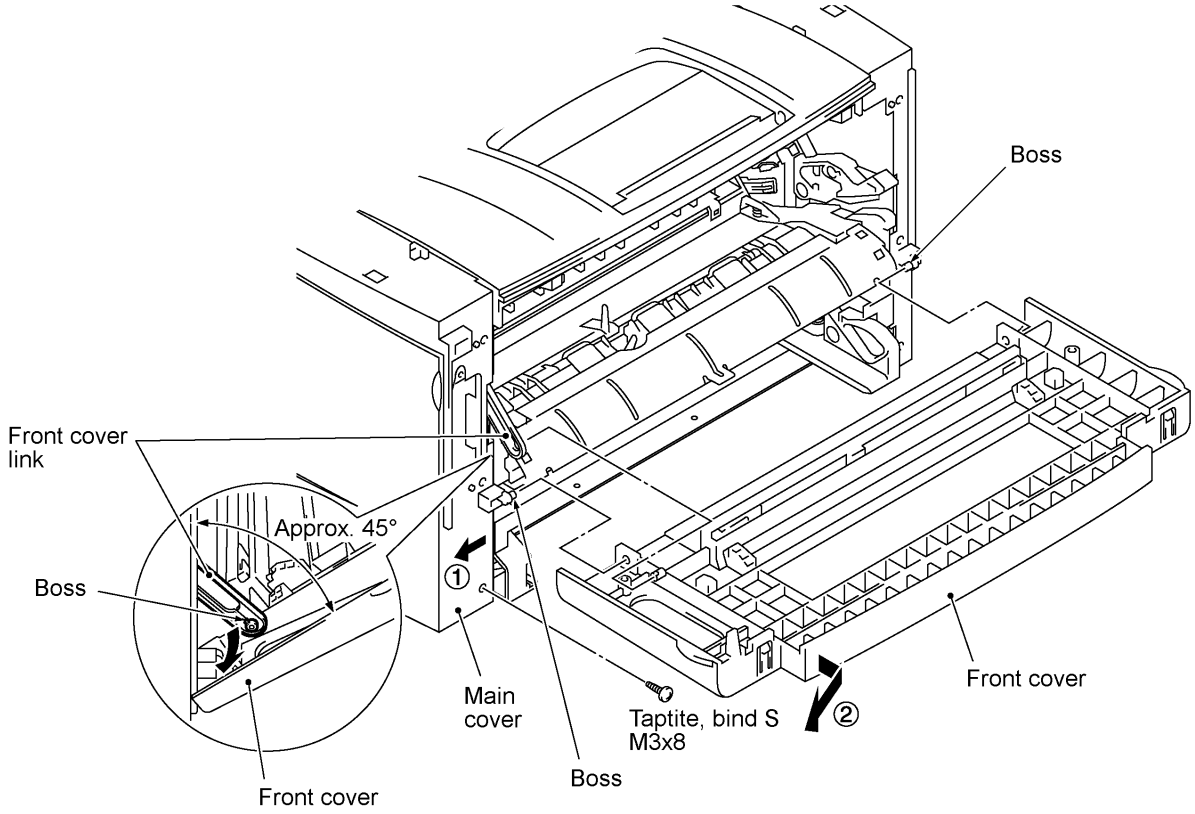
(1) For models not supporting video capture:
Remove the screw and take off the front sub cover from the front cover.



(2) Remove the screw from the left bottom of the front side of the main cover.

(3) Hold the front cover at an angle of 45° and pull the front cover link to the left to release it from the front cover.

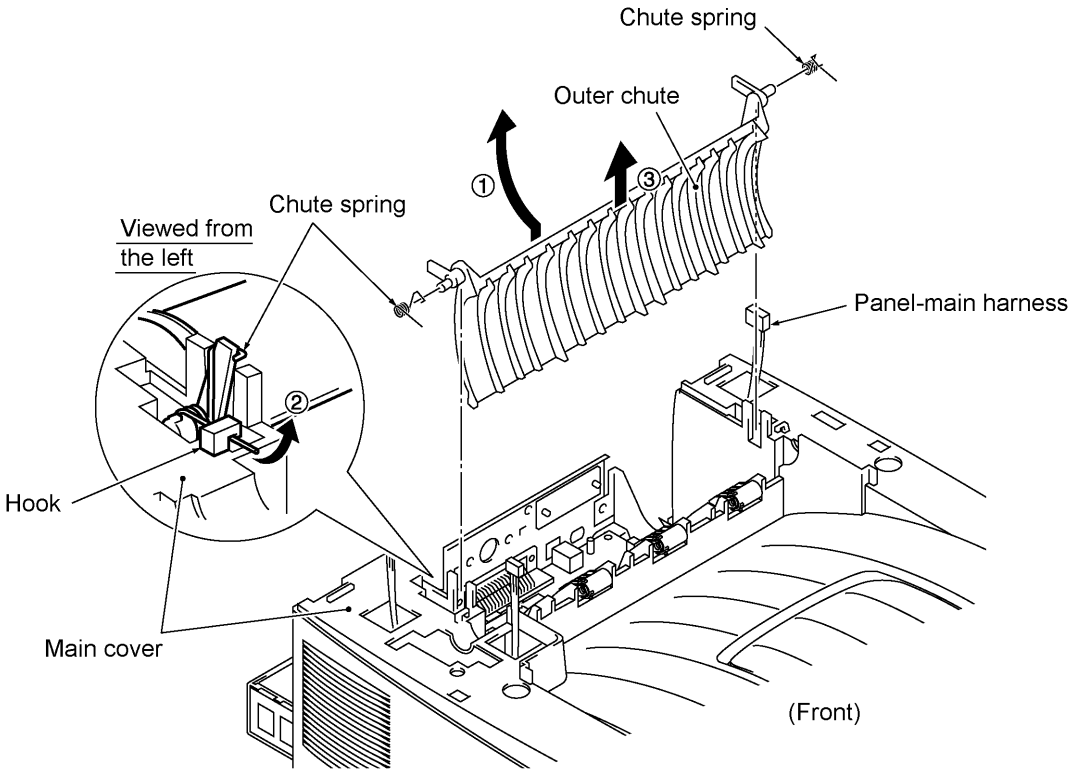
(4) Pull the bottom left front corner of the main cover to the left (in the direction of arrow) and release the front cover from the boss provided on the main cover (arrow).



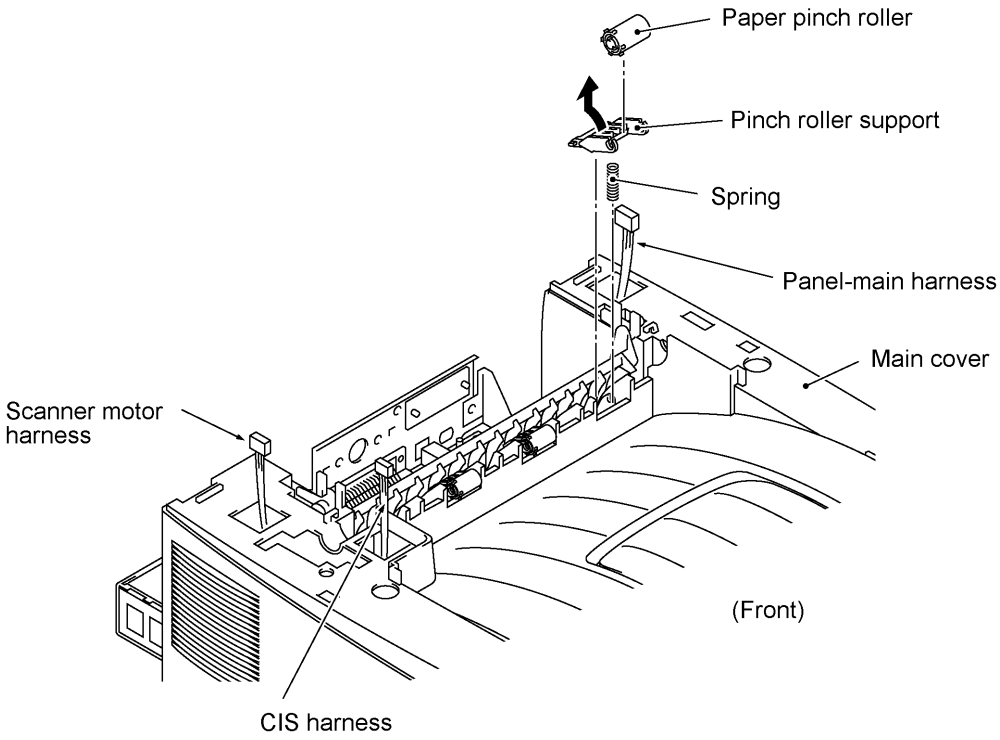
1.13 Outer Chute and Paper Pinch Rollers

(1) Pull up the outer chute and open it (in the direction of arrow).

(2) Remove the chute springs from the hooks provided on the main cover (arrow), then lift up the outer chute (arrow).



(3) Remove the paper pinch rollers, their supports, and their springs.

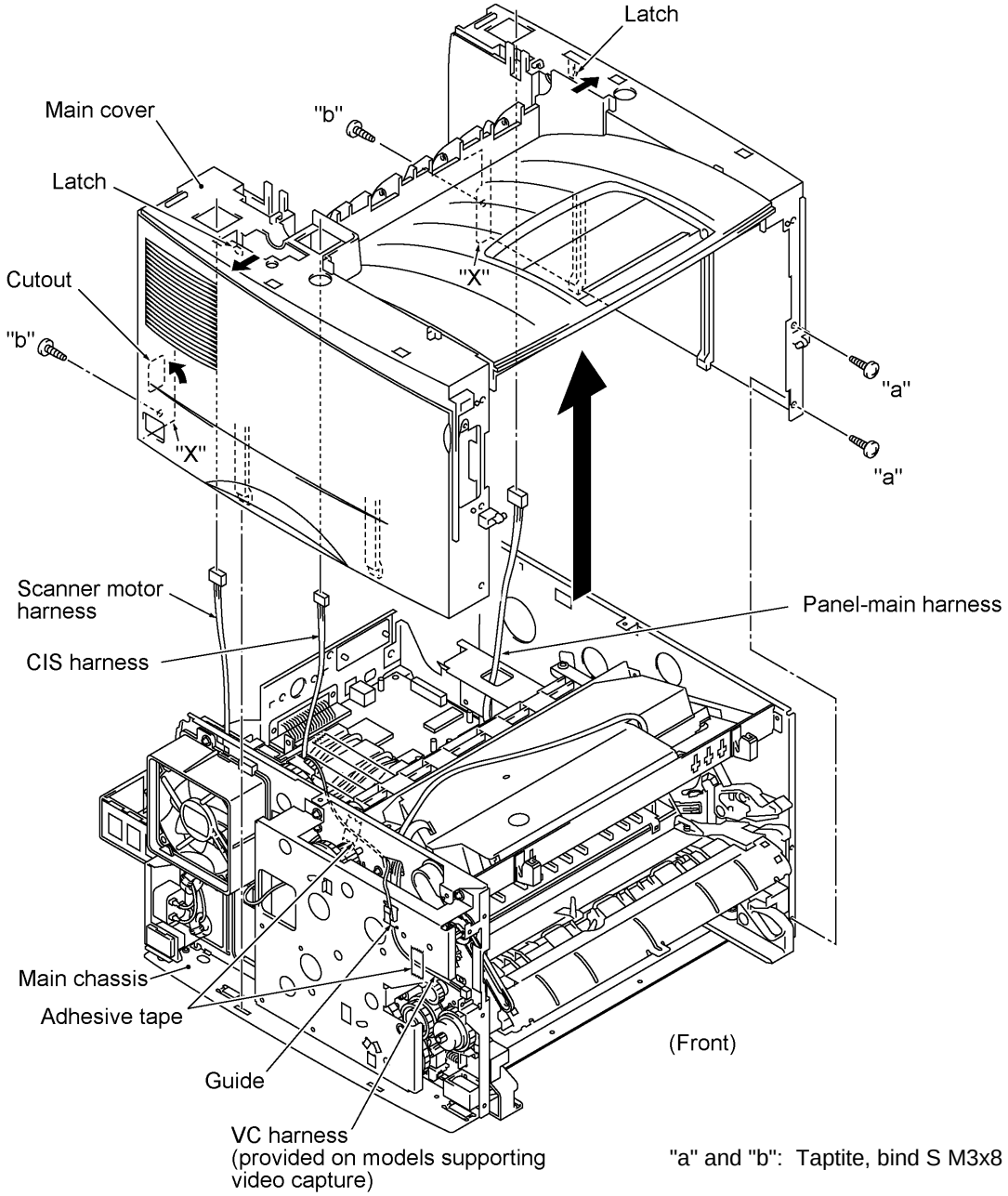


1.14 Main Cover

(1) Remove two screws "a" from the front side of the main cover.

(2) Remove two screws "b" from the rear side of the main cover, and then pull corner edges "X" outwards to dislocate the main cover from the main chassis. Make sure that the cutout provided in the main cover is dislocated from the power inlet.

(3) Unhook the two latches with the tip of a flat screwdriver, then lift up the main cover.

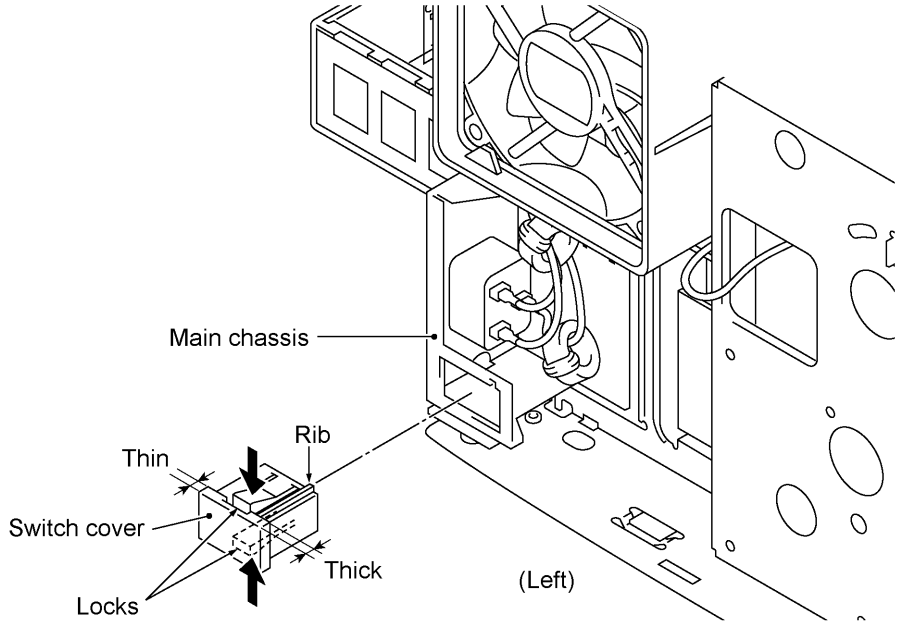


Reassembling Notes

- When reinstalling the main cover, route the panel-main harness, CIS harness, and scanner motor harness through the respective cutouts provided in the main cover, as illustrated above.

1.15 Switch Cover

(1) Push the locks of the switch cover as shown below and remove it.



1.16 Laser Unit

(1) Remove screw "a" and take off the harness cover.

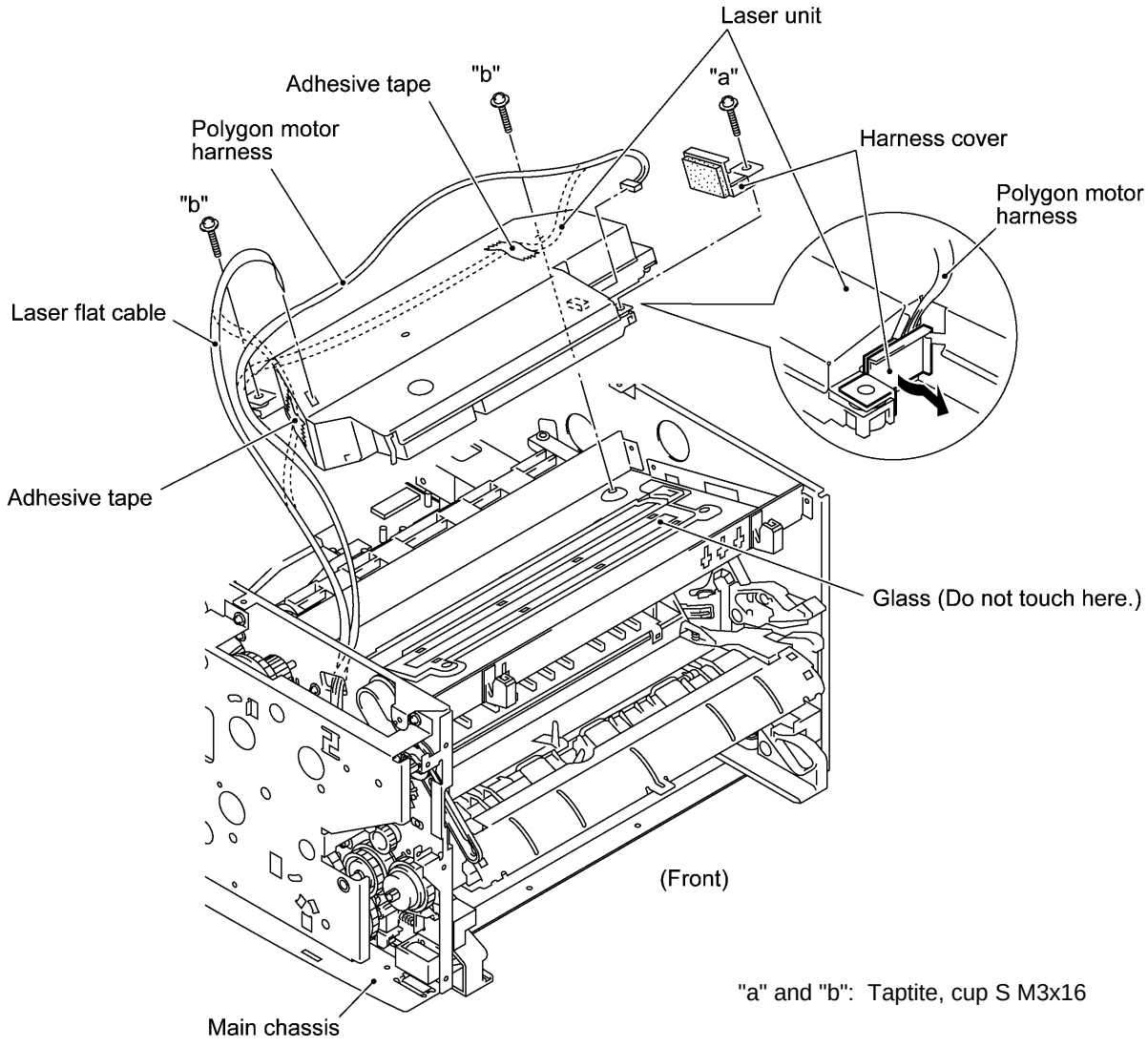
(2) Remove two screws "b."

(3) Disconnect the polygon motor harness and laser flat cable from the laser unit.

(4) Lift up the laser unit.

NOTE: When handling the laser unit, take care not to touch the inside of the unit, glass, or mirror.

NOTE: On the small PCB in the laser unit is a 2-pin connector which is for the adjustment in the factory. Do not disturb it.



Reassembling Notes

- Before putting the laser unit back into place, check for any toner particles, paper dust or dirt, and clean them out.
- After routing the polygon motor harness and laser flat cable, tape them onto the laser unit as shown above.

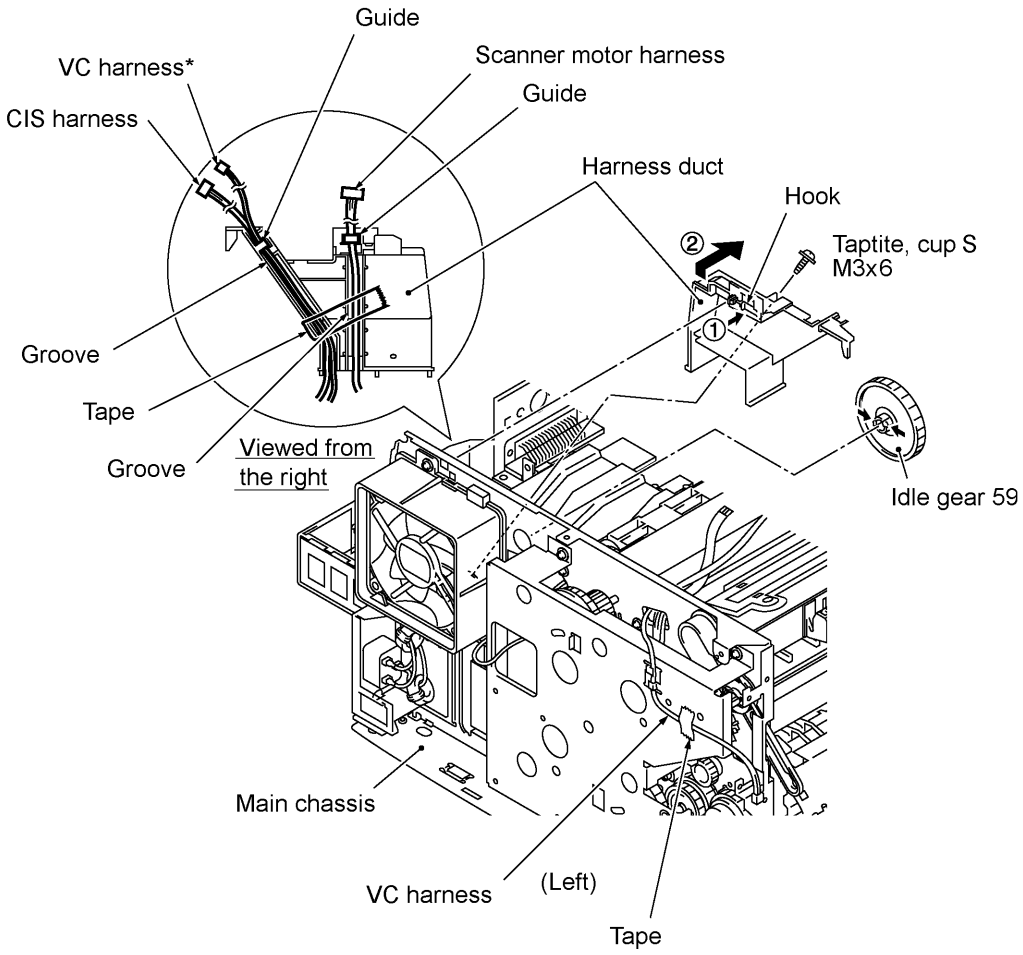
1.17 Heat-fixing Unit and FU Lamp

(1) Remove the screw from the harness duct.

(2) Peel off tape and take off the scanner motor harness, CIS harness, and VC harness* from the harness duct.

(3) Unhook the harness duct from the main chassis in the directions of arrows and .

*Provided on models supporting video capture

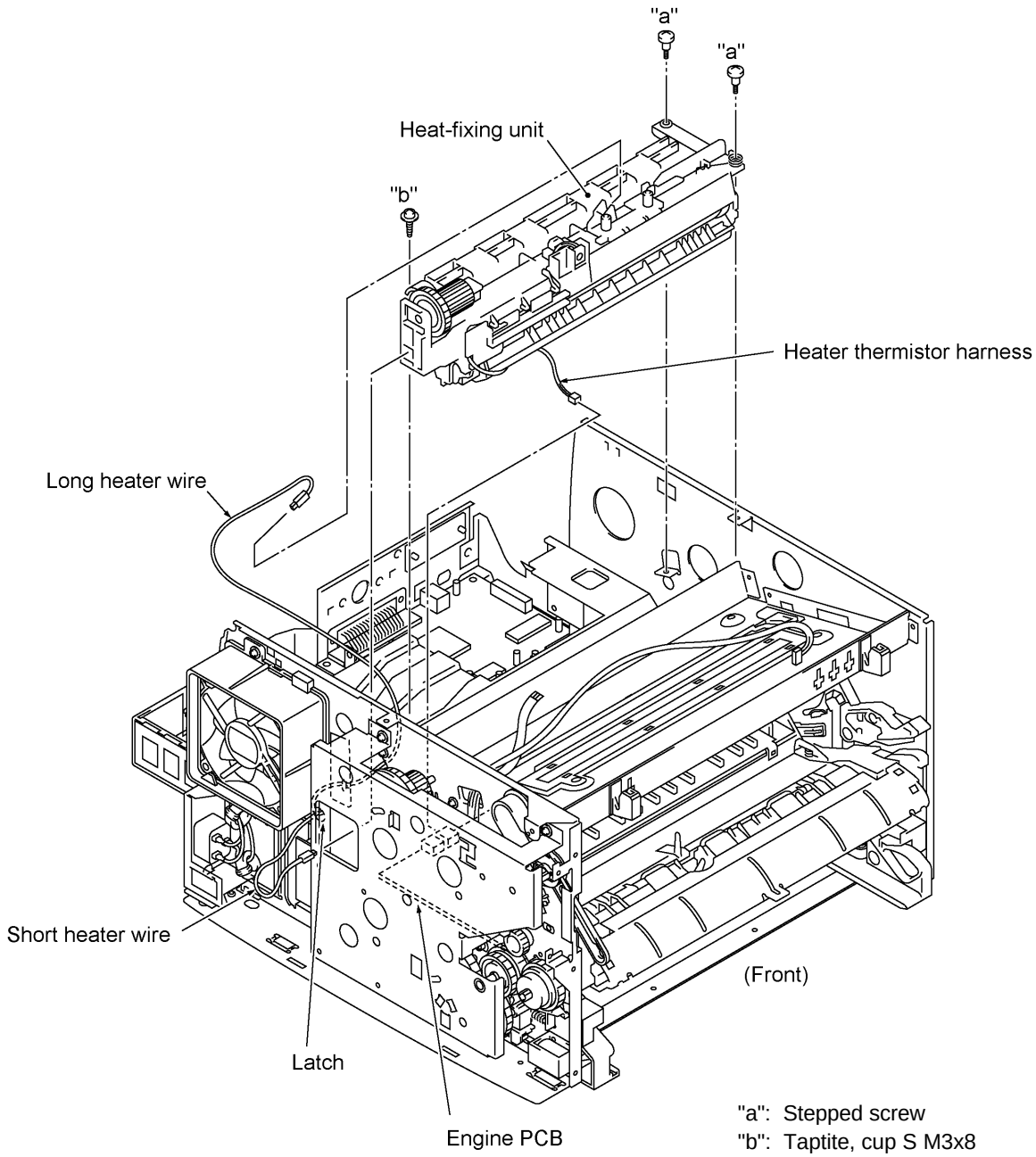


(4) Remove three screws (two "a" and one "b").

(5) Disconnect the long heater wire (of the heater harness) from the upper center of the heat-fixing unit.

(6) Disconnect the short heater wire (of the heater harness) from the left end of the heat-fixing unit.

(7) Lift up the heat-fixing unit and disconnect the heater thermistor harness from the engine PCB.



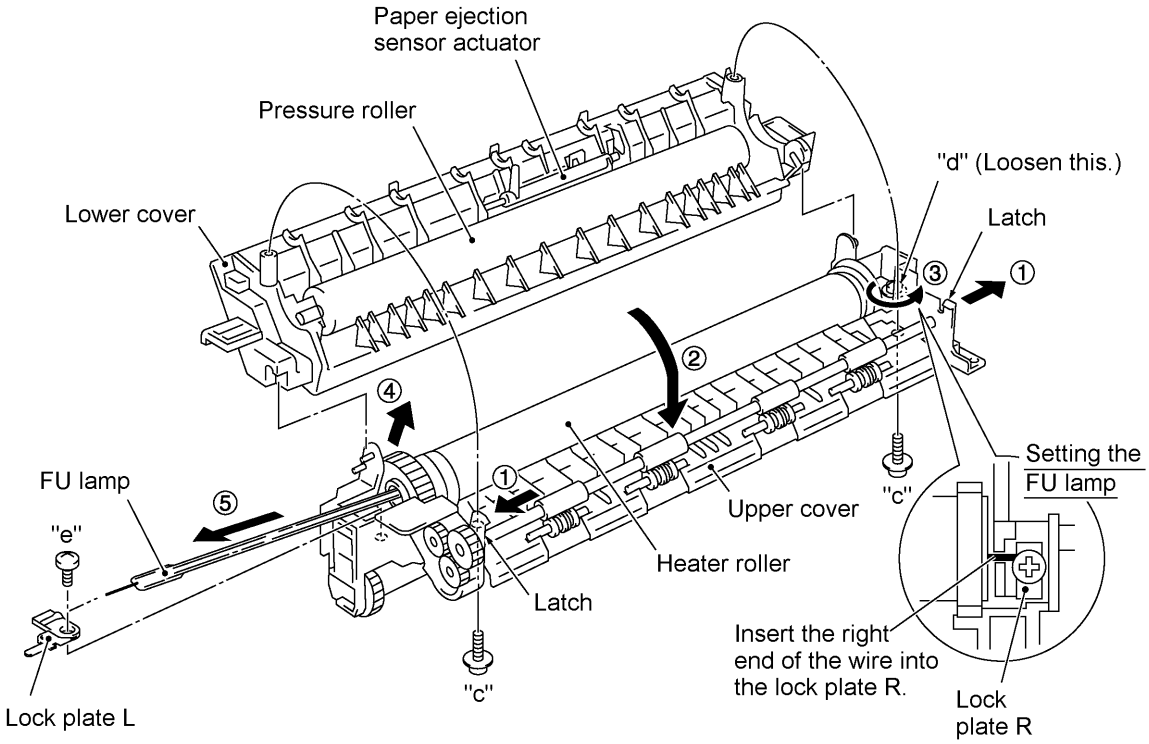
(8) To take out the FU lamp from the heat-fixing unit, remove two screws "c."

(9) Unhook the two latches outwards (in the direction of arrows) with the tip of a flat screwdriver and open the upper cover (arrow). The upper and lower covers will become separated from each other.

(10) Loosen screw "d" (arrow).

(11) Remove screw "e," slightly lift up the heater roller gear (arrow), hold the lock plate L of the FU lamp between your fingers, and pull out the FU lamp from the heater roller (arrow).

CAUTION: Do not touch the FU lamp. If you have touched it, clean it thoroughly with alcohol.

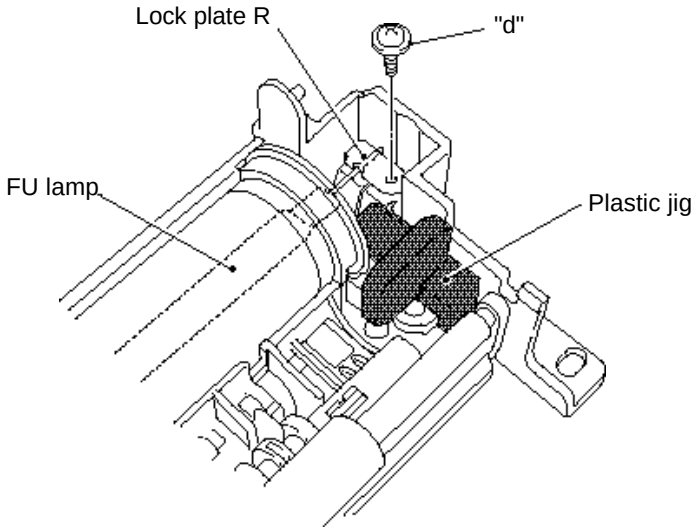


"c": Taptite, cup B M3x20
"d": Pan cup M3x6
"e": Taptite, pan M3x10DB

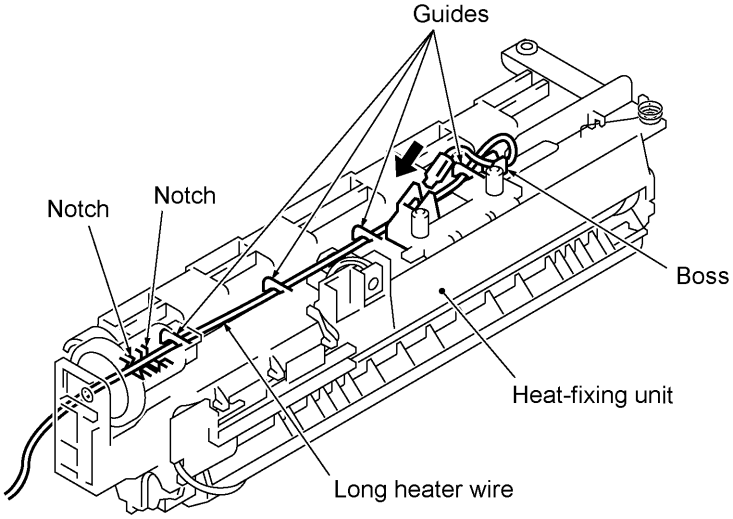
Reassembling Notes

- When setting the FU lamp into the heat-fixing unit, be sure to insert the right end of the wire into the lock plate R as illustrated above.

- When securing the lock plate R with screw "d," be sure to use the plastic jig as shown below to avoid damaging the edge of the FU lamp with a screwdriver.



- A new heat-fixing unit will be provided with the heater thermistor harness being taped to the unit. Before installing the unit, remove the tape.
- When setting the heat-fixing unit back into place, make sure that the heater wires are routed through the latch of the fan duct (see the illustration given on page IV-34) and then route the long heater wire as shown below.



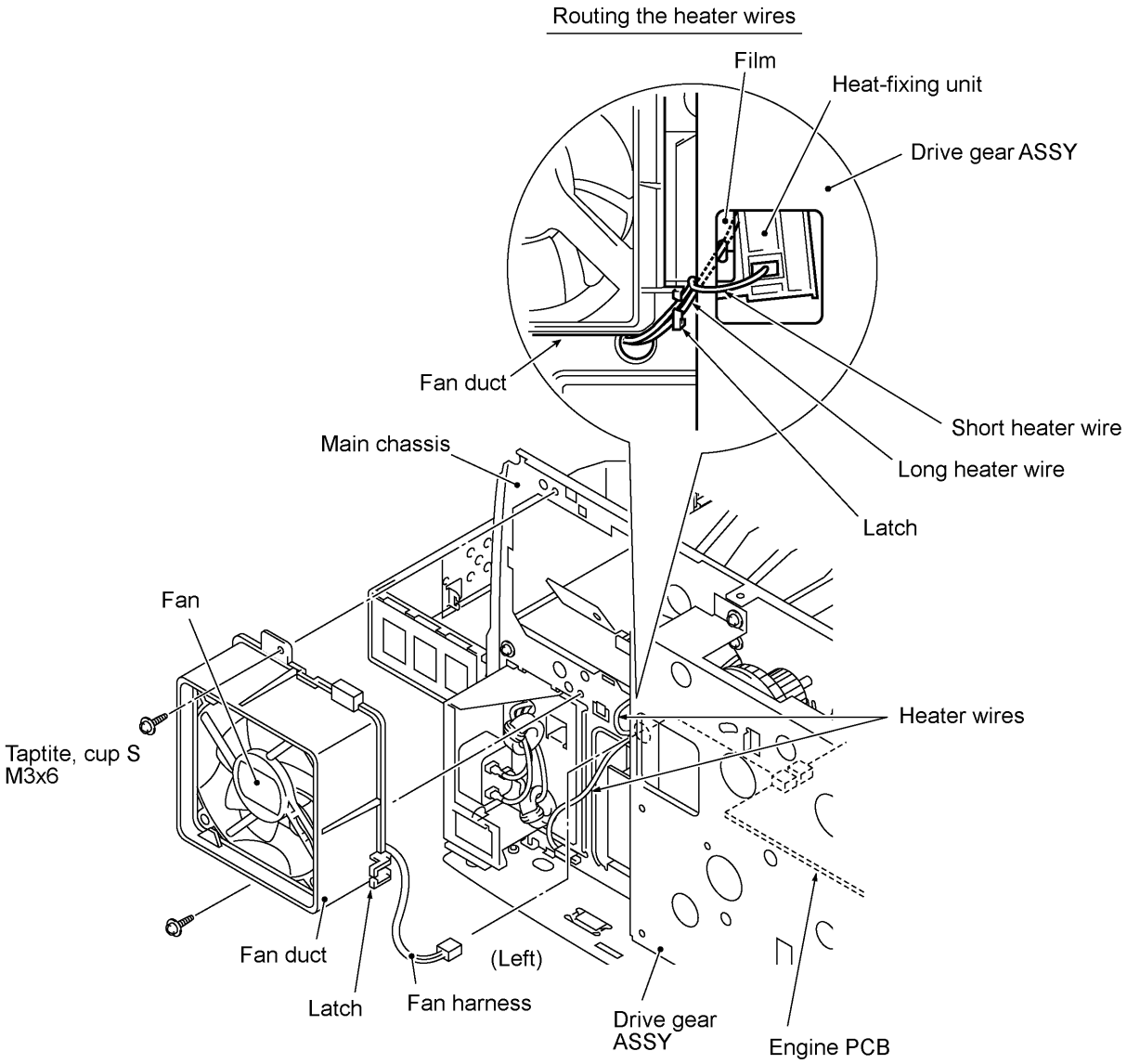
- If you remove and reinstall the heat-fixing unit because of any failure, make the equipment enter the maintenance mode (by pressing the **Function/Menu**, *** 2**, **8**, **6**, and **4** keys) after completion of reassembly and then make it exit from the mode (by pressing the **9** key twice). Otherwise, the heat-fixing unit may not become energized because of the following reason:

  If the failure of the heat-fixing unit is caused by an opening of the thermistor circuit (that senses the temperature of the heat-fixing unit), the system misinterprets the hot heater as being cold. As a result, the temperature of the heat-fixing unit may become excessively high. To prevent the system from heating the hot heater further at the next powering-on, it is designed so that the heater will not be energized. To cancel this setting, you need to carry out the above maintenance-mode procedure.

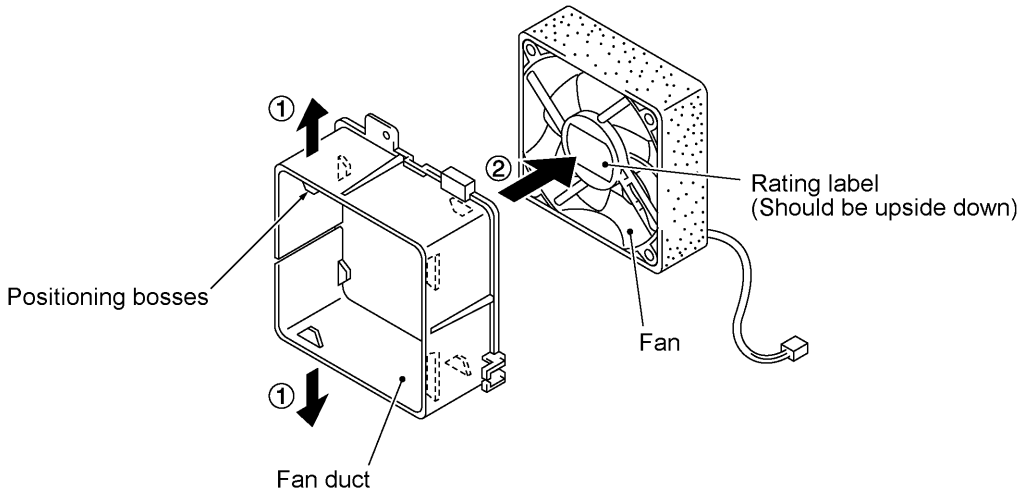
1.18 Fan

(1) Disconnect the fan harness from the engine PCB.

(2) Remove two screws, take out the heater wires from the latch of the fan duct, and take off the fan duct together with the fan.



(3) As shown below, pull the fan duct outwards and take out the fan.



Reassembling Notes

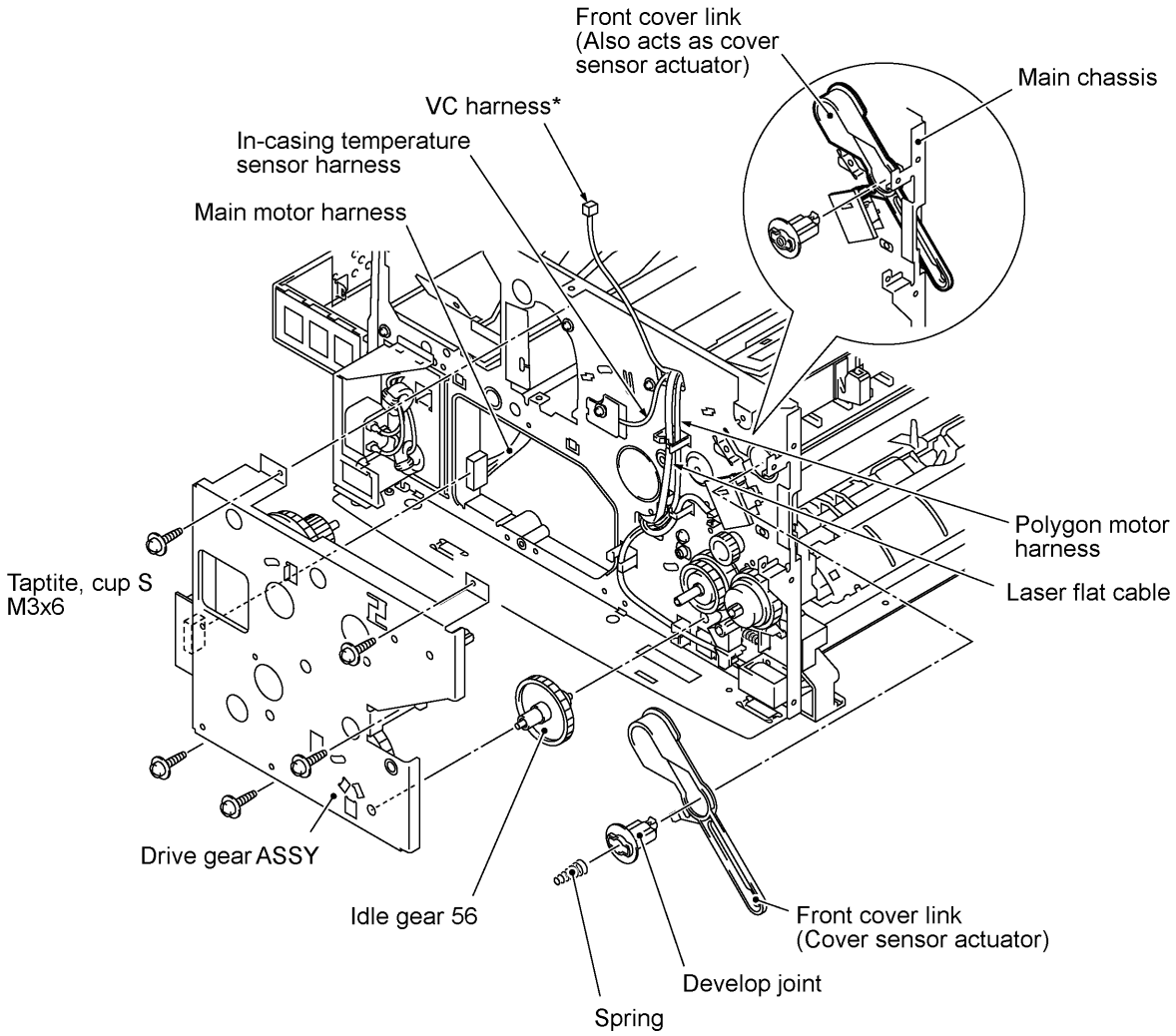
- Put the fan back into place so that the rating label faces outwards and upside down.
- Route the heater wires through the latch of the fan duct as shown on the previous page.

1.19 Drive Gear ASSY and Main Motor ASSY

(1) Remove five screws from the drive gear ASSY.

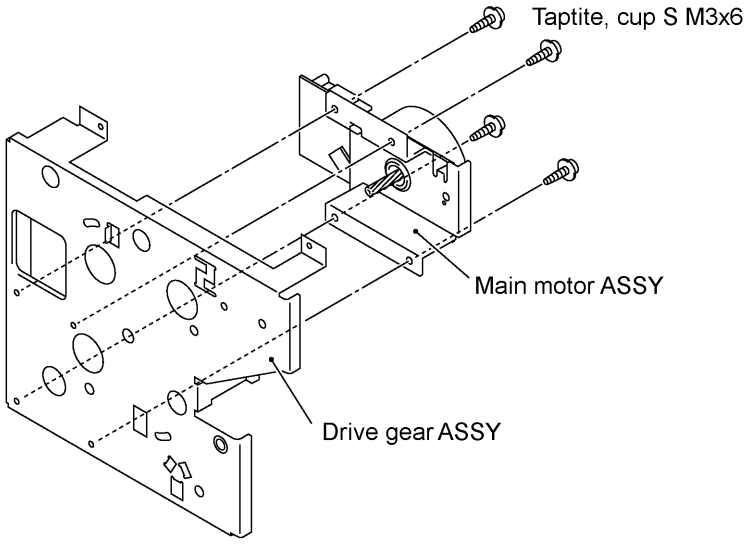
(2) Tilt the drive gear ASSY towards you while taking care not to drop the develop joint and spring, and then disconnect the main motor harness.

(3) Remove the front cover link and idle gear 56 from the main chassis.



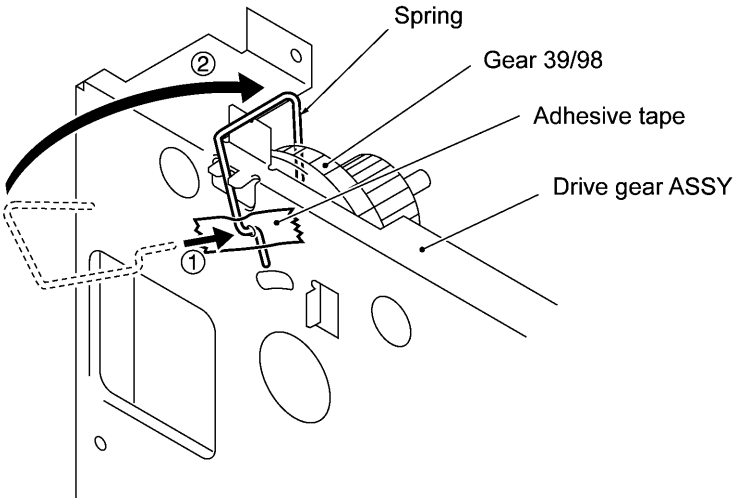
*Provided on models supporting video capture

(4) Remove four screws and take off the main motor ASSY from the drive gear ASSY.



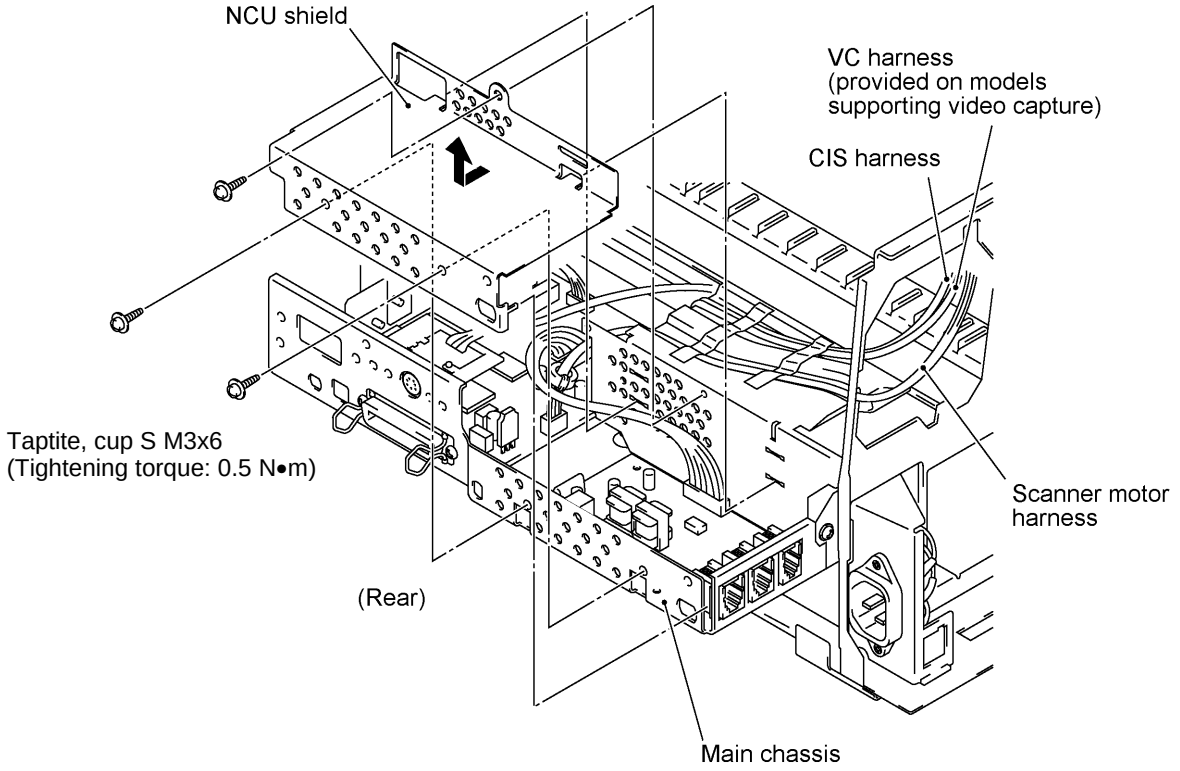
Reassembling Notes

- If you have removed the gear 39/98 from the drive gear ASSY, hook the spring as shown below.



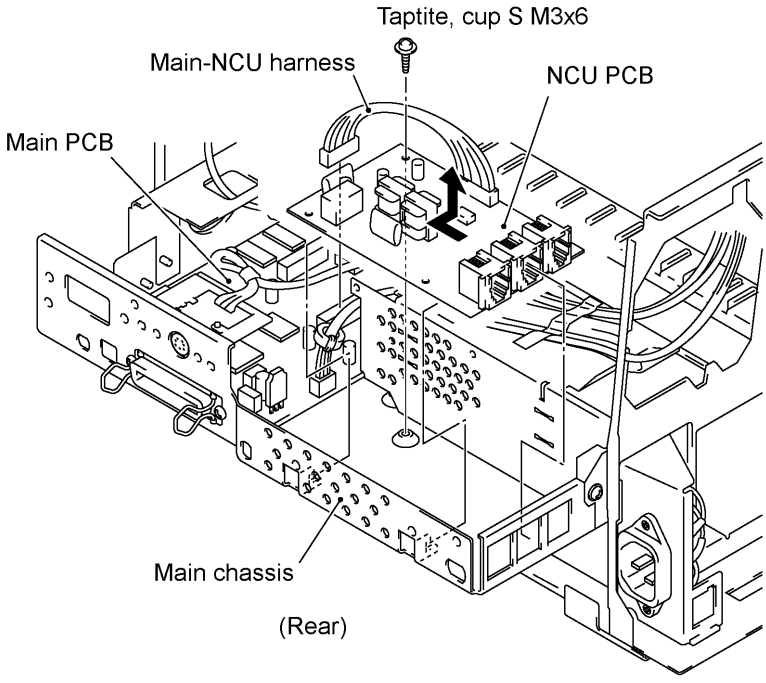
1.20 NCU Shield and NCU PCB

(1) Remove three screws from the NCU shield, then take off the NCU shield.



(2) USA version: Disconnect the main-NCU harness from the main PCB.
European version: Disconnect the main-NCU harness and main-NCU harness 2 from the main PCB. See the illustration given on the next page.

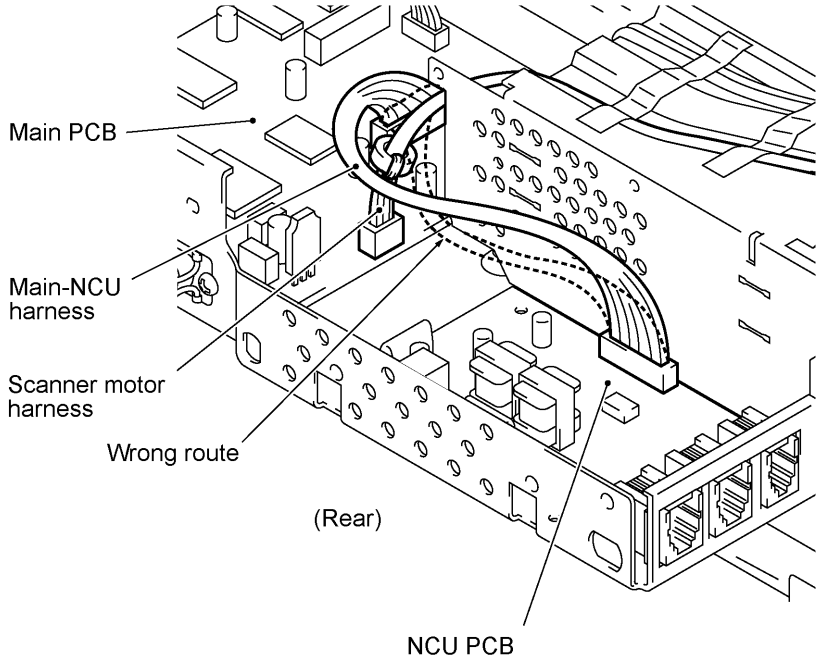
(3) Remove the screw from the NCU PCB and take out the PCB.



Reassembling Notes

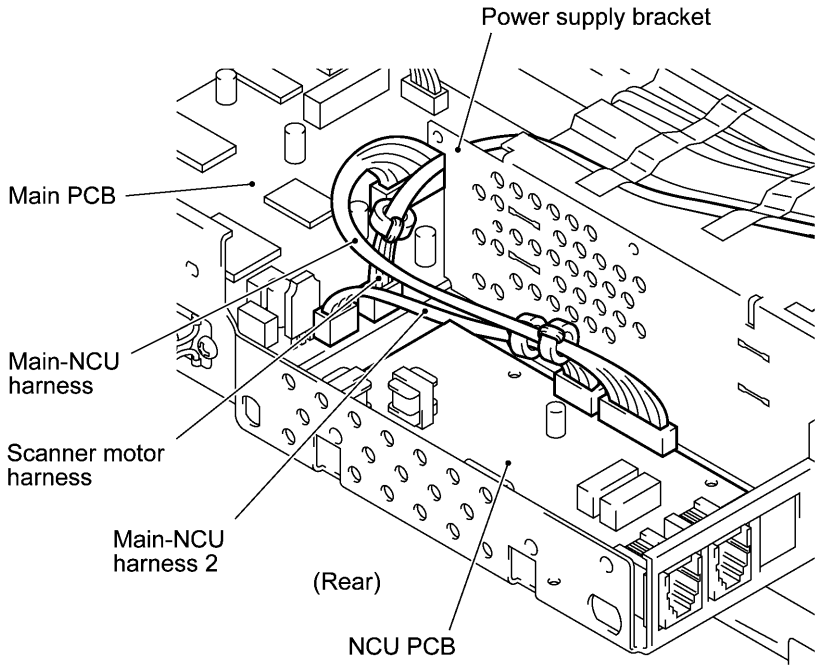
[USA version]

- Route the main-NCU harness above the scanner motor harness as illustrated below.



[European version]

- As illustrated below, route the main-NCU harness and main-NCU harness 2 between the NCU PCB and the power supply bracket to prevent them from interfering with the primary circuitry on the NCU PCB. Then install the NCU shield.

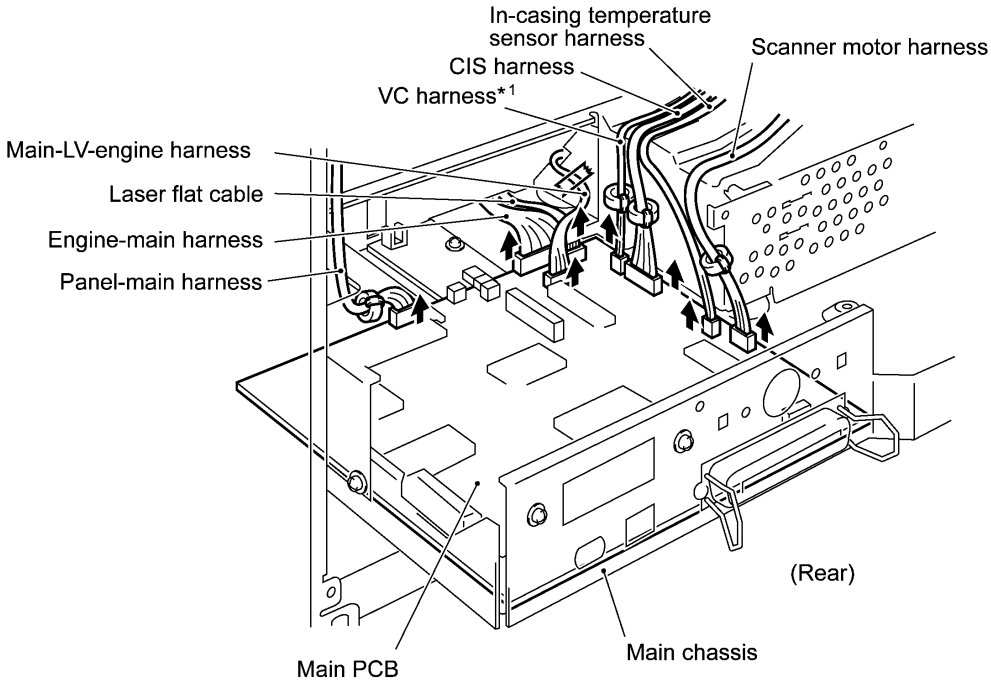


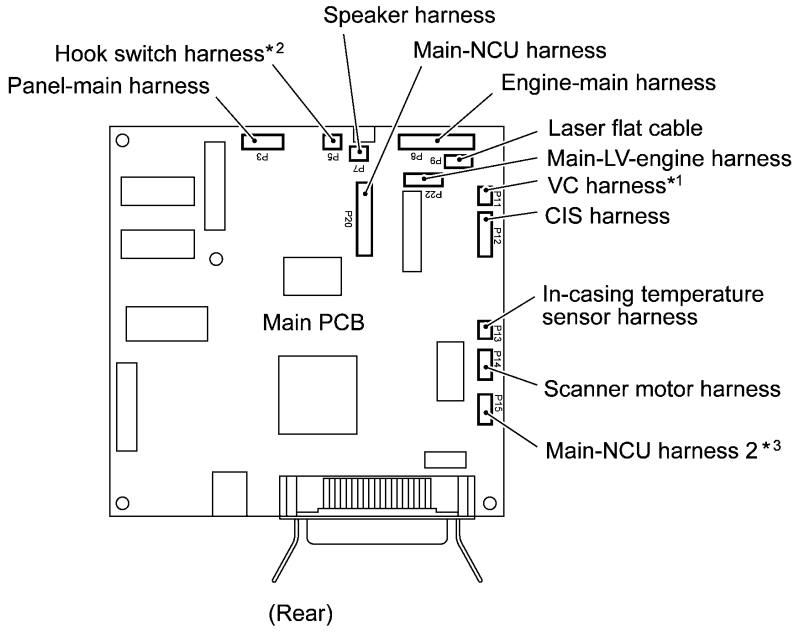
1.21 Bottom Plate, Main PCB, and Bottom Insulation Film

(1) Disconnect the following harnesses and flat cable from the main PCB:

- Panel-main harness (6-pin, P3)
- Main-LV-engine harness (6-pin, P22)
- Laser flat cable (P9)
- Engine-main harness (12-pin, P8)
- VC harness*1 (2-pin, P11)
- CIS harness (7-pin, P12)
- In-casing temperature sensor harness (2-pin, P13)
- Scanner motor harness (4-pin, P14)

*1 Provided on models supporting video capture
*2 Provided on models equipped with a handset
*3 Provided on the European version





(2) Turn the main chassis upside down.

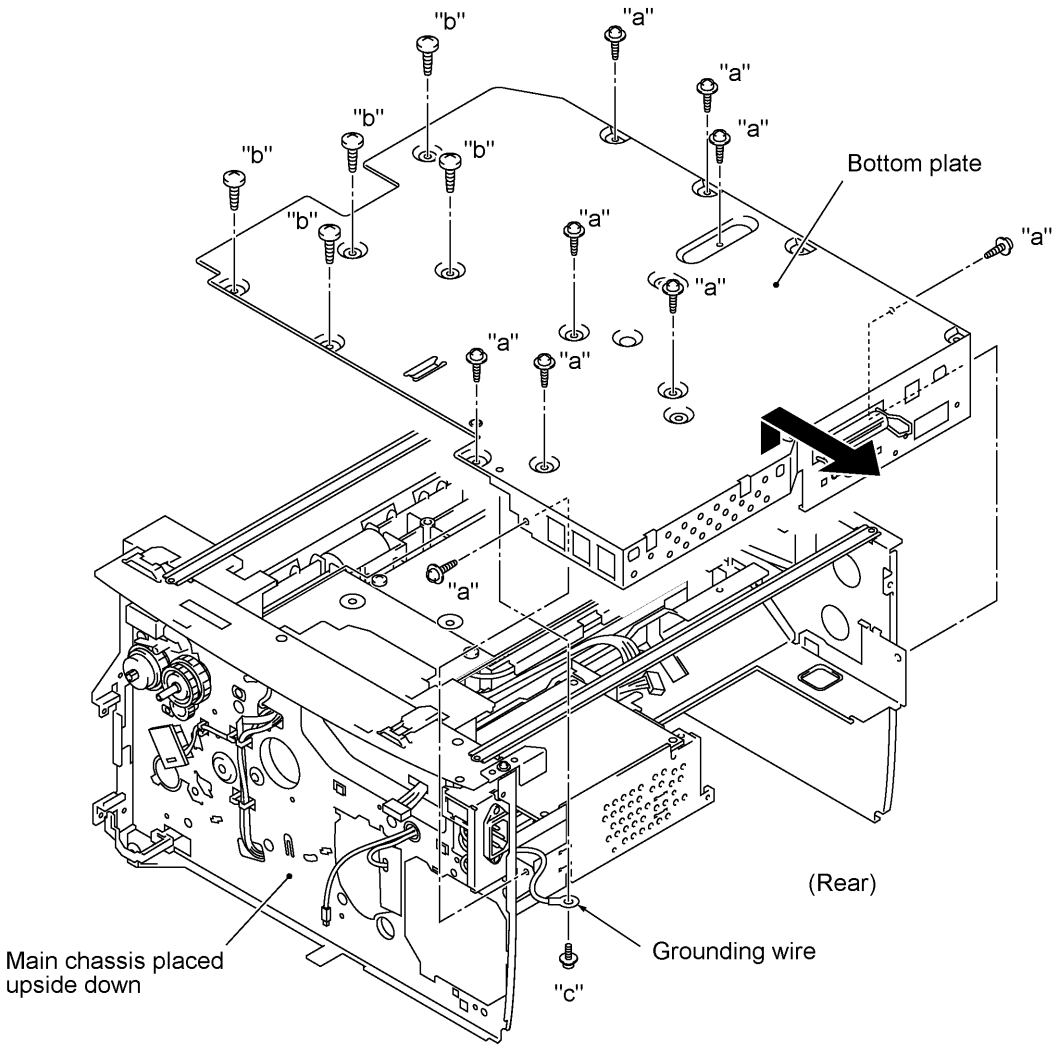
(3) Remove 14 screws (nine "a" and five "b").

(4) Slightly lift up the bottom plate and pull it to the rear until you can remove screw "c."

(5) Remove screw "c" to release the grounding wire.

(6) For models available with a 2nd paper cassette: Unhook the 2nd cassette relay PCB bracket from the bottom plate.

(7) Pull the bottom plate to the rear and out of the main chassis.

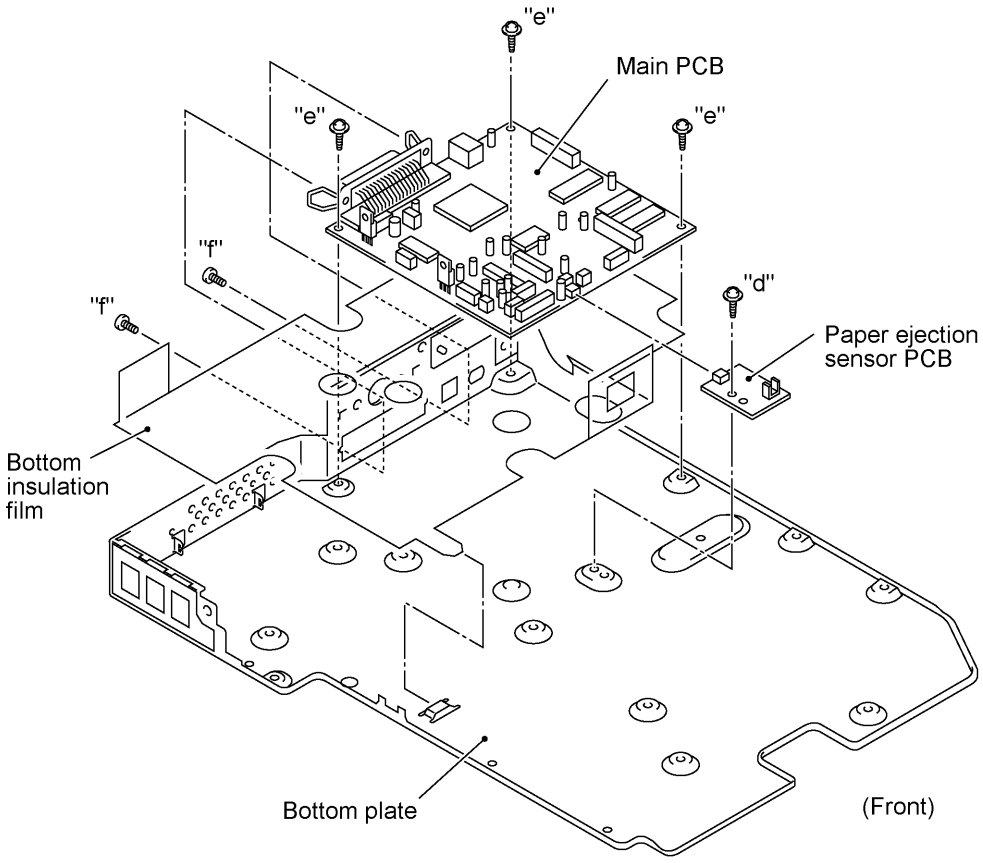


"a": Taptite cup S M3x6
"b": Taptite, bind B M4x12
"c": Screw, pan (washer) M3.5x6

(8) Remove screw "d" and disconnect the paper ejection sensor PCB from the main PCB.

(9) Remove five screws (three "e" and two "f"), then take off the main PCB from the bottom plate.

(10) Remove the bottom insulation film.

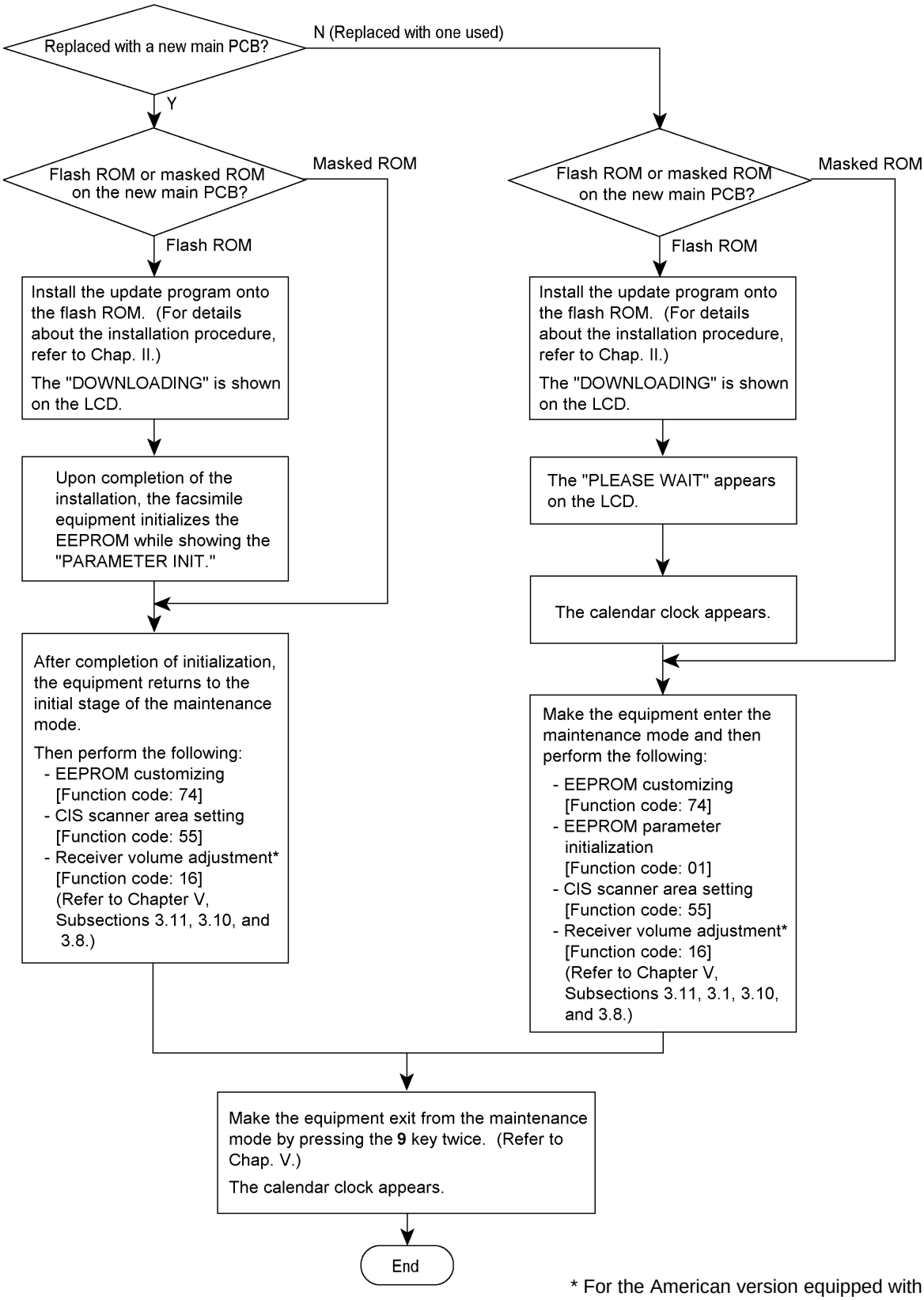


"d" and "e": Taptite, cup S M3x6
"f": Machine screw, pan M3x6

Reassembling Notes

- When putting the bottom plate back into place, make sure that the grounding wire is looped and routed through the support film (as illustrated on page IV-44) and then secure the grounding wire to the bottom plate with screw "c" (shown on the previous page).
- When connecting the engine-main harness, laser flat cable, and main-LV-engine harness to the main PCB, prevent them from interfering with each other in the vicinity of the connectors.
- After you replace the main PCB, be sure to follow the flowchart given on the next page.

Setting up the main PCB after replacement


Replaced with a new main PCB?
N (Replaced with one used)
Y
Flash ROM or masked ROM on the new main PCB?
Masked ROM
Flash ROM
Install the update program onto the flash ROM. (For details about the installation procedure, refer to Chap. II.)
The "DOWNLOADING" is shown on the LCD.
Upon completion of the installation, the facsimile equipment initializes the EEPROM while showing the "PARAMETER INIT."
After completion of initialization, the equipment returns to the initial stage of the maintenance mode.
Then perform the following:
- EEPROM customizing [Function code: 74]
- CIS scanner area setting [Function code: 55]
- Receiver volume adjustment* [Function code: 16] (Refer to Chapter V, Subsections 3.11, 3.10, and 3.8.)
Flash ROM or masked ROM on the new main PCB?
Masked ROM
Flash ROM
Install the update program onto the flash ROM. (For details about the installation procedure, refer to Chap. II.)
The "DOWNLOADING" is shown on the LCD.
The "PLEASE WAIT" appears on the LCD.
The calendar clock appears.
Make the equipment enter the maintenance mode and then perform the following:
- EEPROM customizing [Function code: 74]
- EEPROM parameter initialization [Function code: 01]
- CIS scanner area setting [Function code: 55]
- Receiver volume adjustment* [Function code: 16] (Refer to Chapter V, Subsections 3.11, 3.1, 3.10, and 3.8.)
Make the equipment exit from the maintenance mode by pressing the 9 key twice. (Refer to Chap. V.)
The calendar clock appears.
End

* For the American version equipped with a handset.

1.22 Low-voltage Power Supply PCB and Power Inlet

(1) Remove two screws "g" and take off the rear underbar.

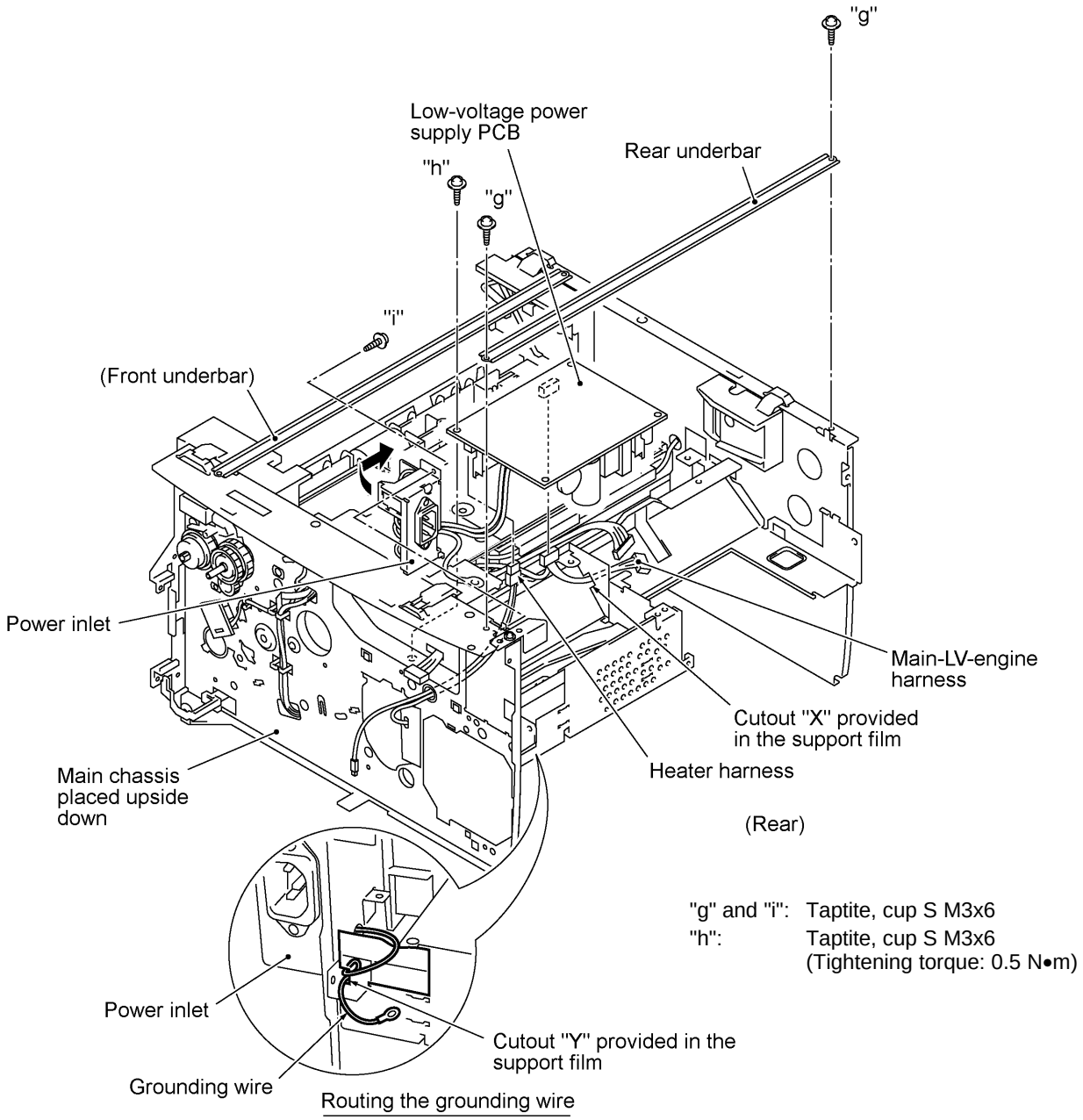
(2) Remove screw "h."

(3) Slightly lift up the low-voltage power supply PCB and disconnect the heater harness and main-LV-engine harness. The low-voltage power supply PCB is connected to the power inlet with soldered lead wires.

(4) Remove screw "i."

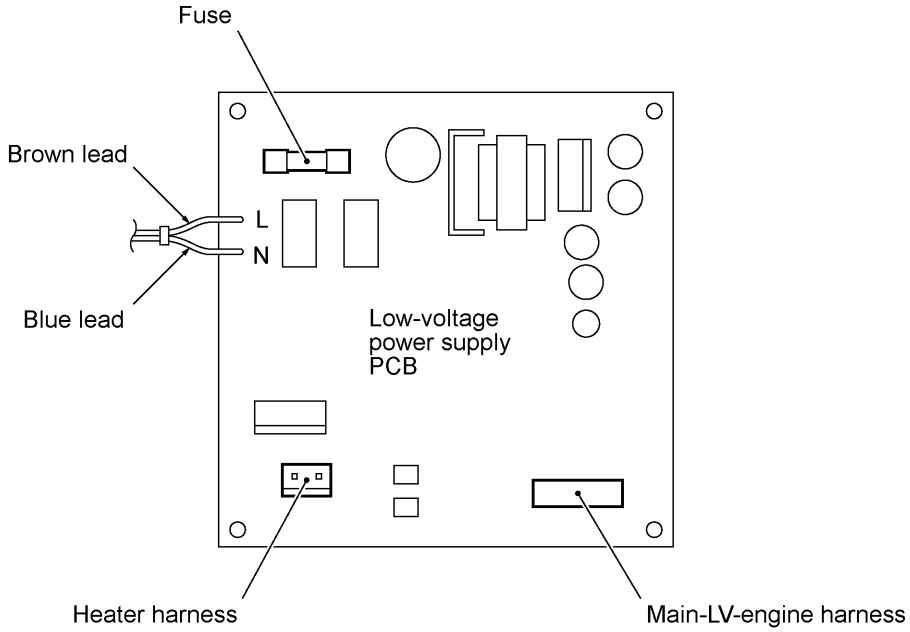
(5) While holding up the low-voltage power supply PCB, take out the power inlet from the main chassis to the inside in the direction of the arrow shown below.

(6) To separate the power inlet from the low-voltage power supply PCB, unsolder the two lead wires from the PCB.



Reassembling Notes

- When connecting the power inlet to the low-voltage power supply PCB, insert the brown and blue lead wires into eyelets L and N in the PCB, respectively, and then solder those wires on the solder side of the PCB.



- After setting the power inlet back into place, fold the grounding wire into two and route the fold through cutout "Y" provided in the support film as shown on the previous page.
- When reinstalling the low-voltage power supply PCB, route the main-LV-engine harness through cutout "X" provided in the support film as shown on the previous page.

1.23 Inner Insulation Film, High-voltage Power Supply PCB, Engine PCB, and 2nd Cassette Relay PCB*

(*Provided on models available with a 2nd paper cassette)

(1) Remove screw "a" and take off the inner insulation film.

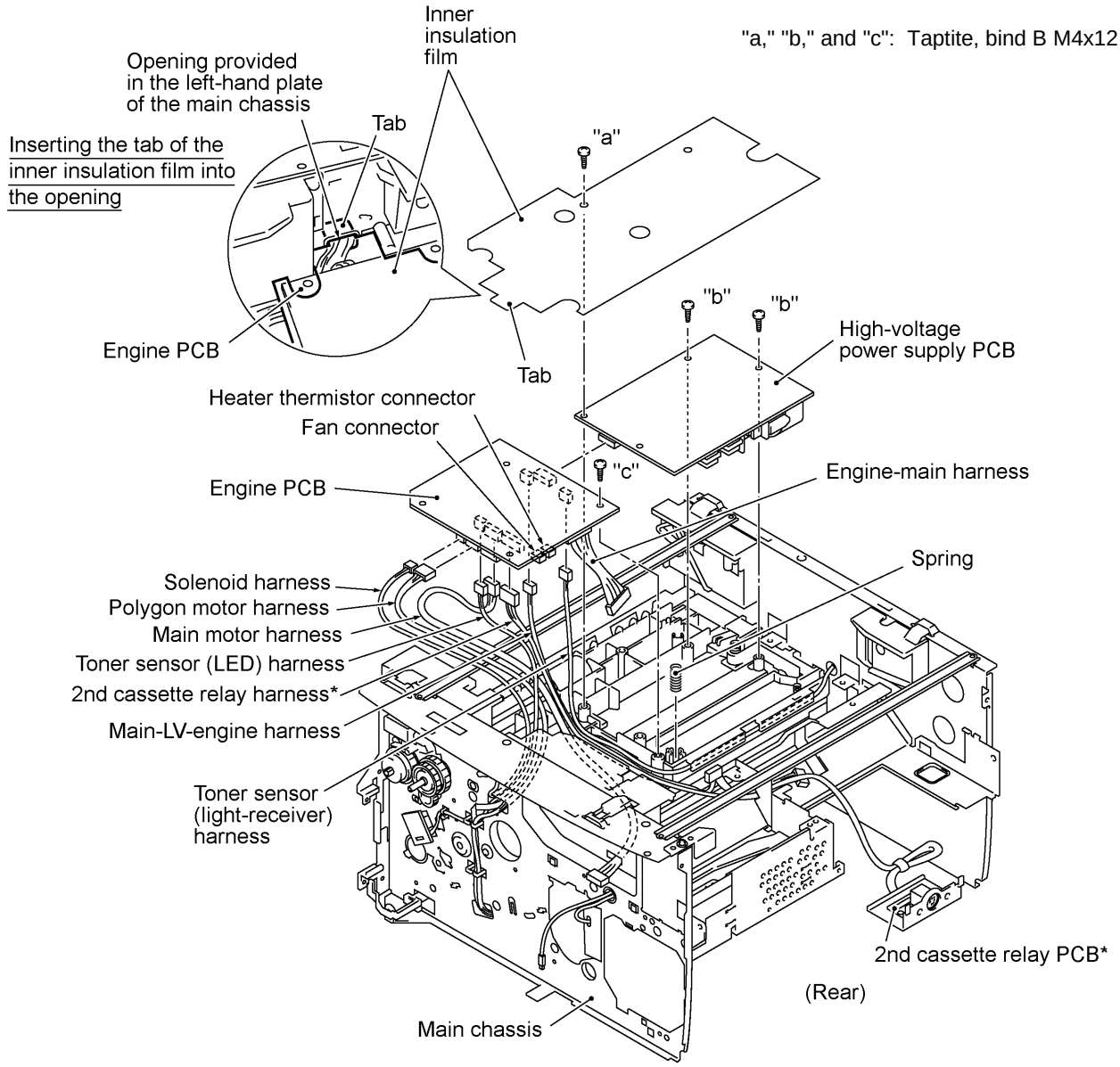
(2) Remove three screws (two "b" and one "c") from the high-voltage power supply PCB and engine PCB.

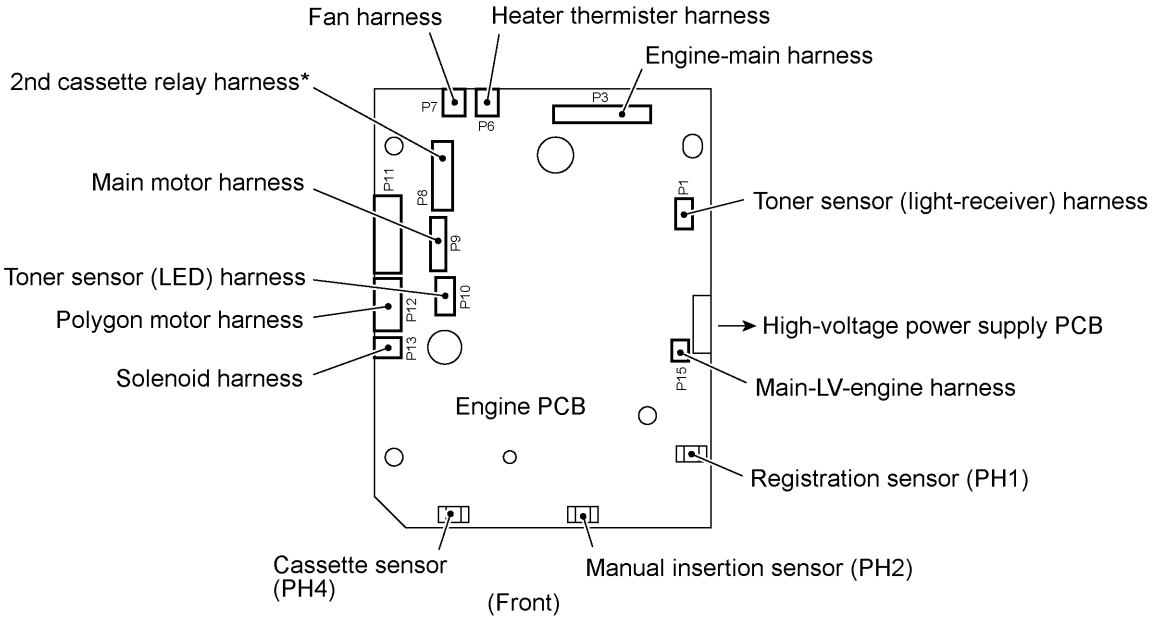
(3) Slightly lift up the high-voltage power supply PCB and disconnect it from the engine PCB.

(4) Pull the spring up and out.

(5) Slightly hold up the engine PCB and disconnect the following harnesses:

- Toner sensor (light-receiver) harness (3-pin, P1)
- Main-LV-engine harness (2-pin, P15)
- 2nd cassette relay harness* (8-pin, P8)
- Heater thermistor harness (2-pin, P6), if the heat-fixing unit has not been removed
- Fan harness (2-pin, P7), if the fan has not been removed
- Toner sensor (LED) harness (4-pin, P10)
- Main motor harness (6-pin, P9)
- Polygon motor harness (5-pin, P12)
- Solenoid harness (2-pin, P13)

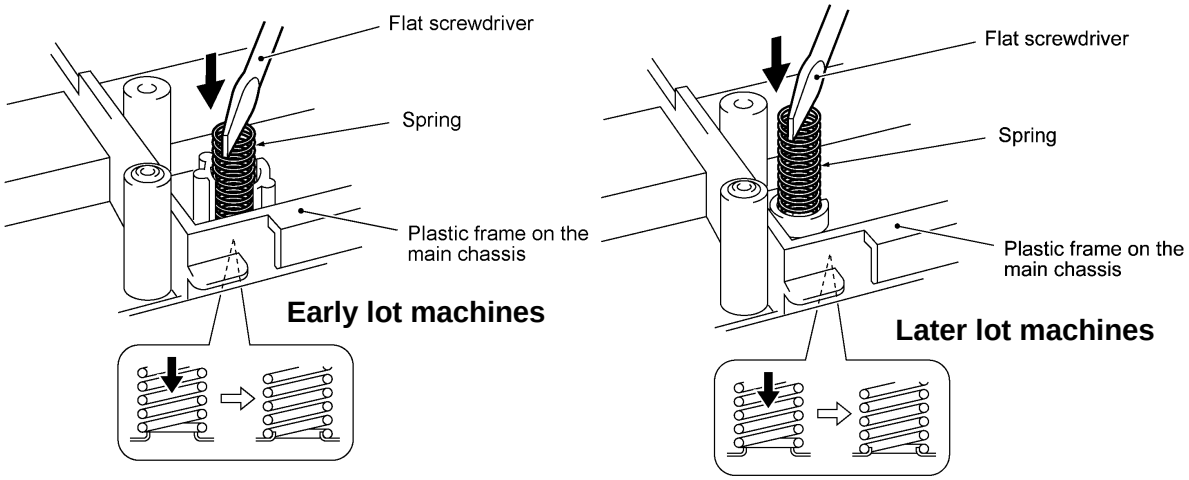




(6) For models available with a 2nd paper cassette: Pull the 2nd cassette relay PCB bracket to take out its harness. Remove the screw and take off the 2nd cassette relay PCB from its bracket.

Reassembling Notes

- Before reinstalling the high-voltage power supply PCB, push in the spring with a flat screwdriver until it snaps into place as shown below.

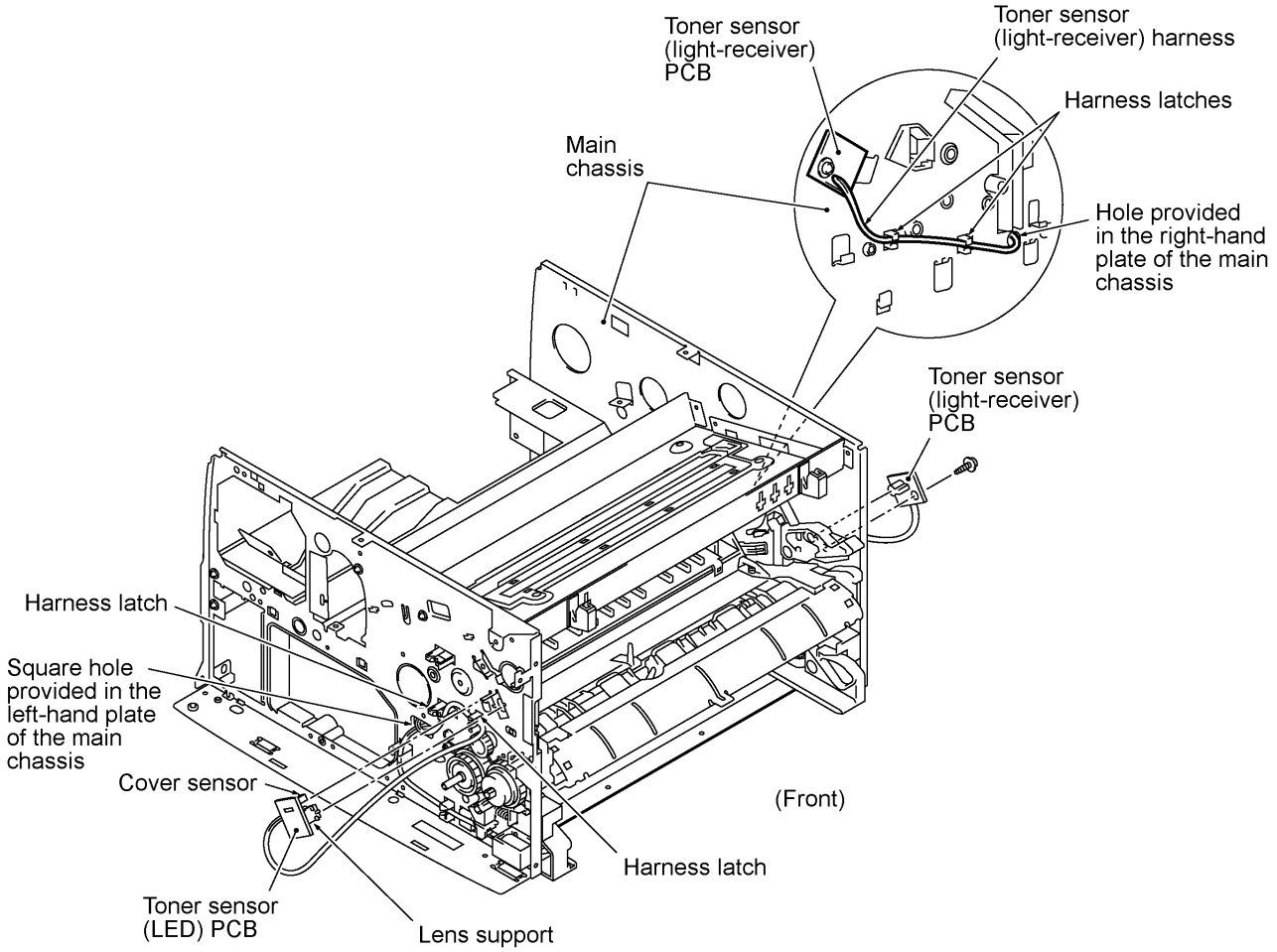


- Before reinstalling the high-voltage power supply PCB, check the high-voltage contacts for any toner particles, paper dust or dirt, and clean them out.

1.24 Toner Sensor (light-receiver) PCB and Toner Sensor (LED) PCB

(1) At the right-hand plate of the main chassis, remove the screw from the toner sensor (light-receiver) PCB, release its harness from the two harness latches, and then pull it out.

(2) At the left-hand plate of the main chassis, press the both sides of the lens support on the toner sensor (LED) PCB with your fingers to release them from the main chassis, release its harness from the two latches, and then pull it out.



Reassembling Notes

- Route the toner sensor (LED) harness on the left-hand side of the main chassis as shown above. Also refer to the illustration given on page IV-46.
- Route the toner sensor (light-receiver) harness on the right-hand side of the main chassis as shown above and on the top of the plastic frame as shown on page IV-46.

1.25 Gears and Paper Pick-up Roller

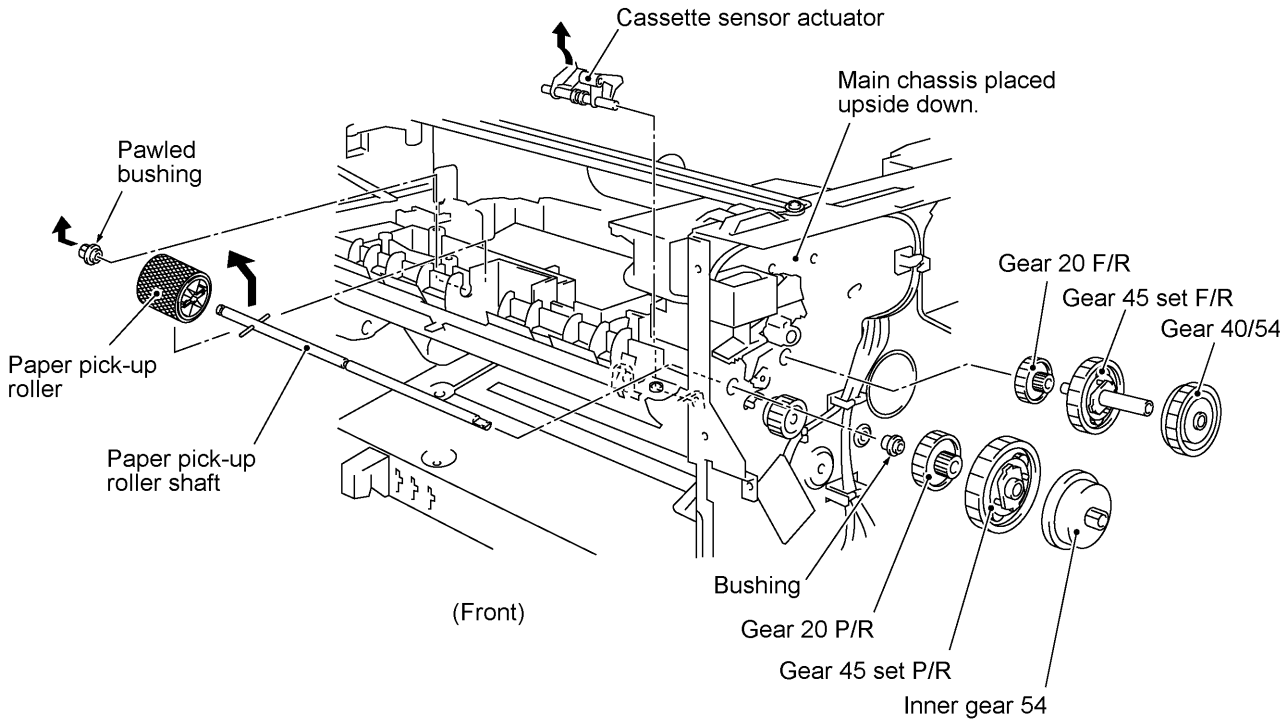
(1) Place the main chassis upside down.

(2) Remove the inner gear 54 (by pulling its pawl outwards), gear 45 set P/R, gear 20 P/R, and the bushing from the end of the paper pick-up roller shaft.

(3) Remove the pawled bushing by pulling its pawl outwards, then remove the paper pick-up roller and its shaft.

(4) Remove the gear 40/54, gear 45 set F/R, and gear 20 F/R.

(5) If the engine PCB has been removed, take out the cassette sensor actuator. (This prevents the actuator from dropping during the following disassembly jobs.)



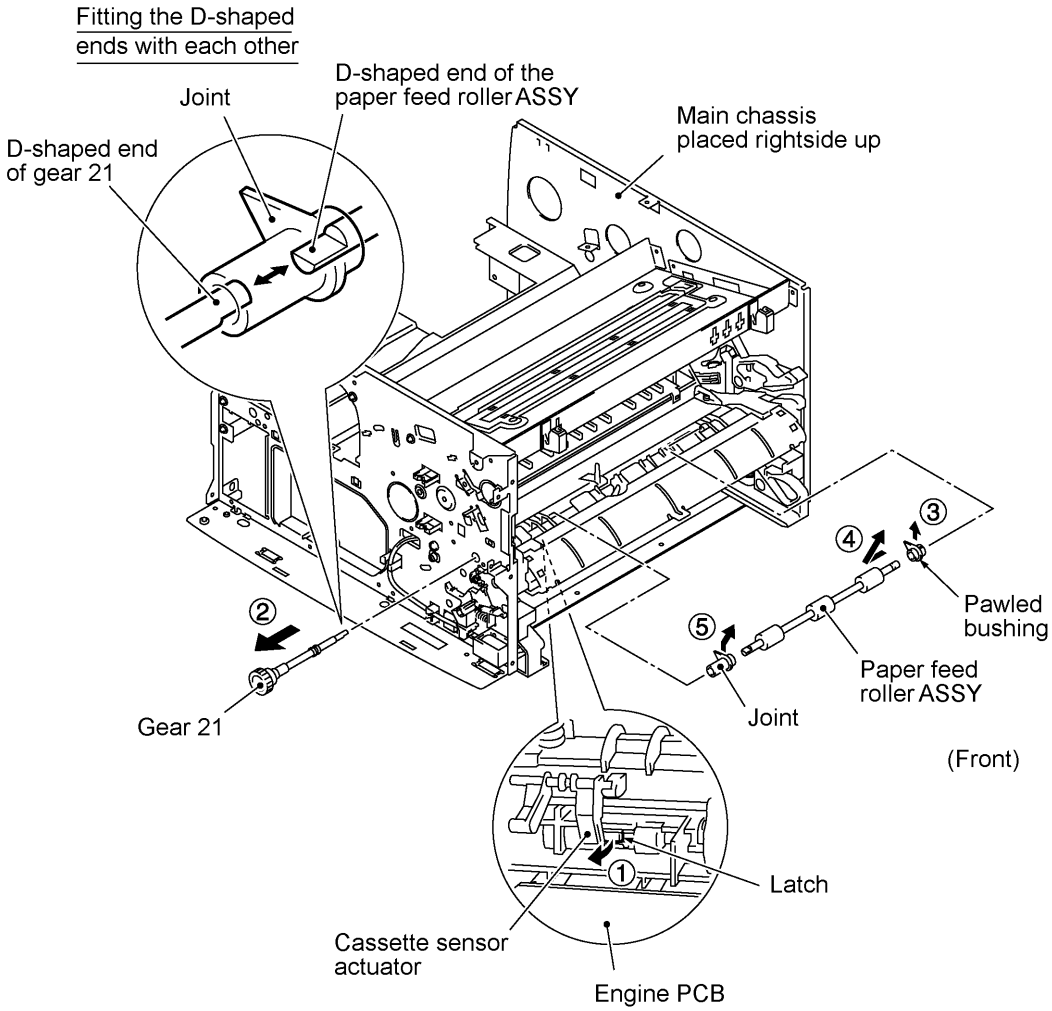
1.26 Paper Feed Roller ASSY

(1) Unhook the latch (arrow) provided on the underside of the plastic frame by using a small flat screwdriver and pull out the gear 21 (arrow).

(2) Place the main chassis rightside up.

(3) At the right end of the paper feed roller shaft, pull up the pawl of the bushing (arrow) with the tip of a flat screwdriver and move the paper feed roller ASSY to the left (arrow). Then take out the bushing and paper feed roller ASSY.

(4) Remove the joint (arrow).

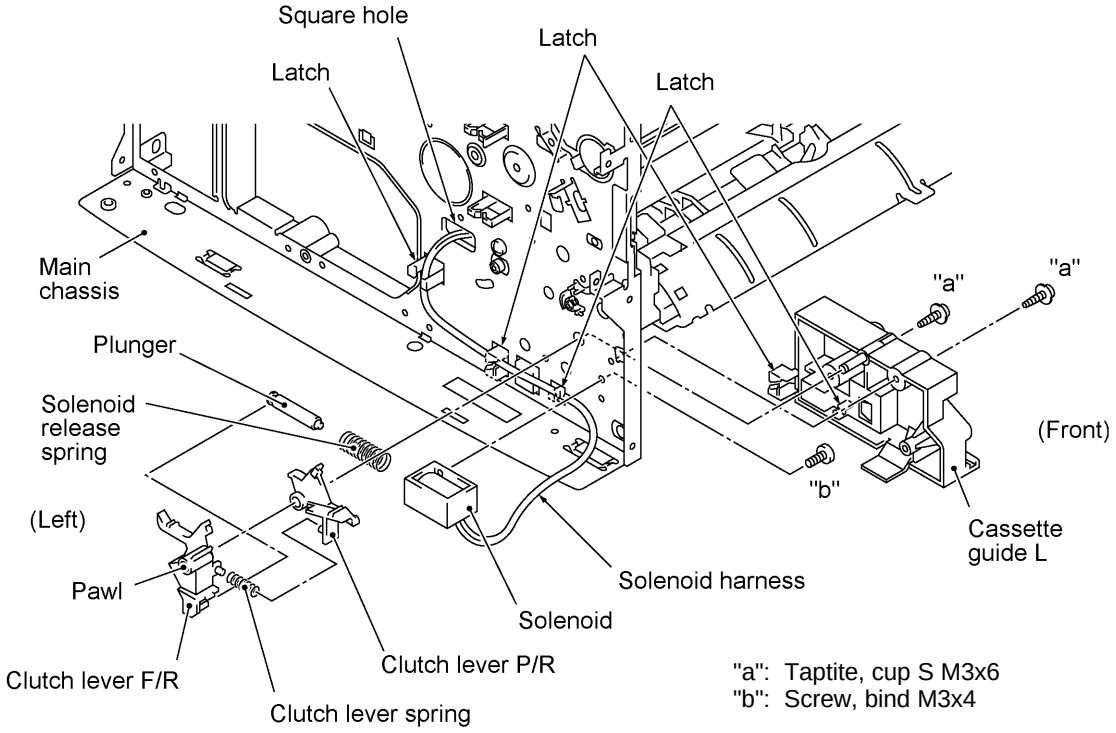


Reassembling Notes

- When setting the gear 21 back into place, insert it and turn it so that its D-shaped end becomes fitted with the D-shaped end of the paper feed roller ASSY.

1.27 Clutch Levers, Cassette Guide L, and Solenoid

(1) Turn the main chassis upside down.
(2) Remove the two screws and take off the front underbar (which is shown on page IV-44).
(3) Place the main chassis rightside up.
(4) Remove the clutch lever F/R by pulling its pawl outwards.
(5) Remove the clutch lever spring and clutch lever P/R.
(6) Remove the plunger and solenoid release spring.
(7) Remove two screws "a" and take off the cassette guide L.
(8) Remove screw "b" and take off the solenoid.



Reassembling Notes

- Route the solenoid harness through three latches and pass it through the square hole provided in the left-hand plate of the main chassis.

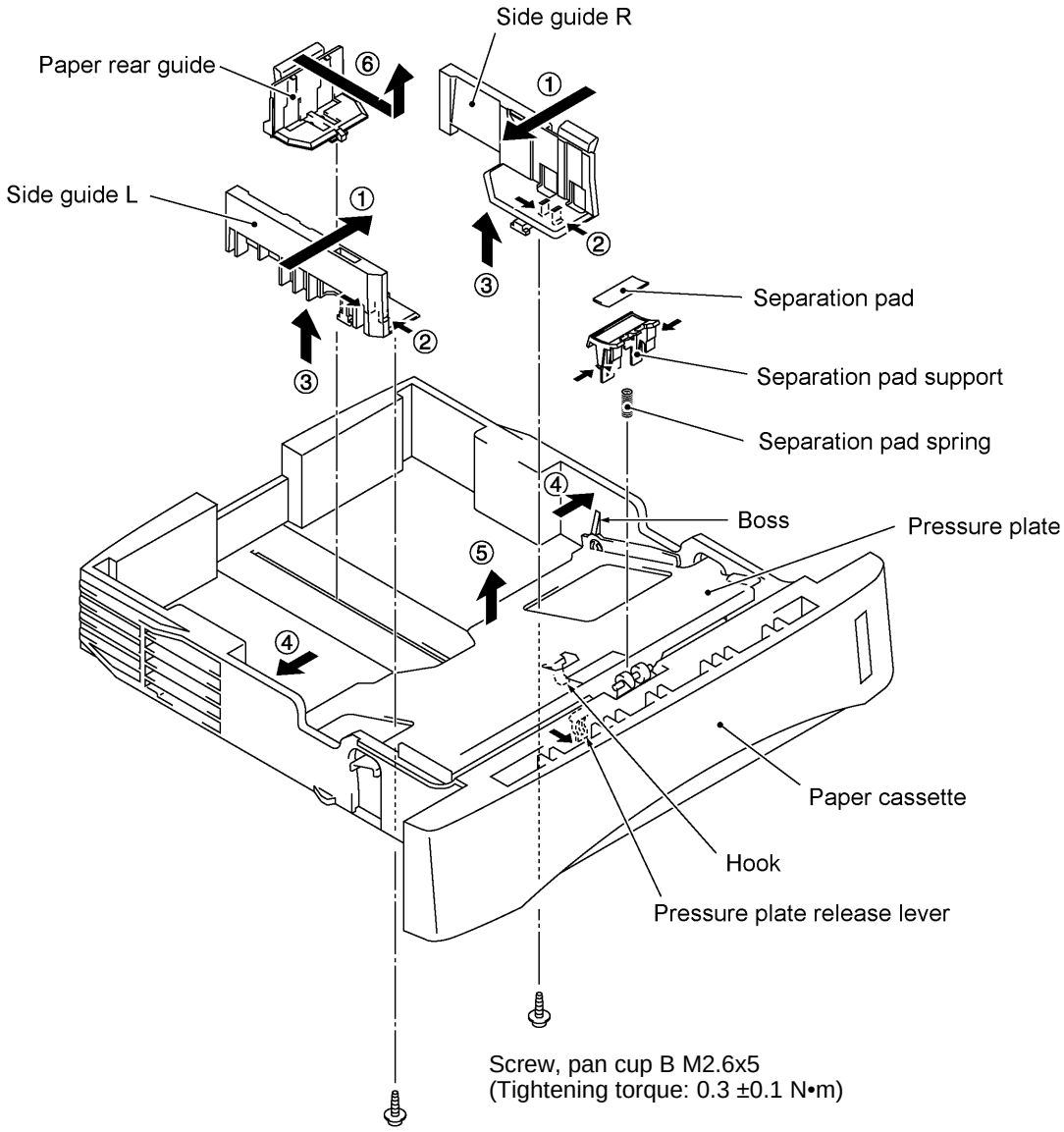
1.28 Paper Cassette

(1) Pull the pressure plate release lever to the front to release the pressure plate.

(2) Fully slide the side guide (R or L) inwards (in the direction of arrow) and remove the screw. Then release the latches (arrow) and pull up the side guide (arrow).

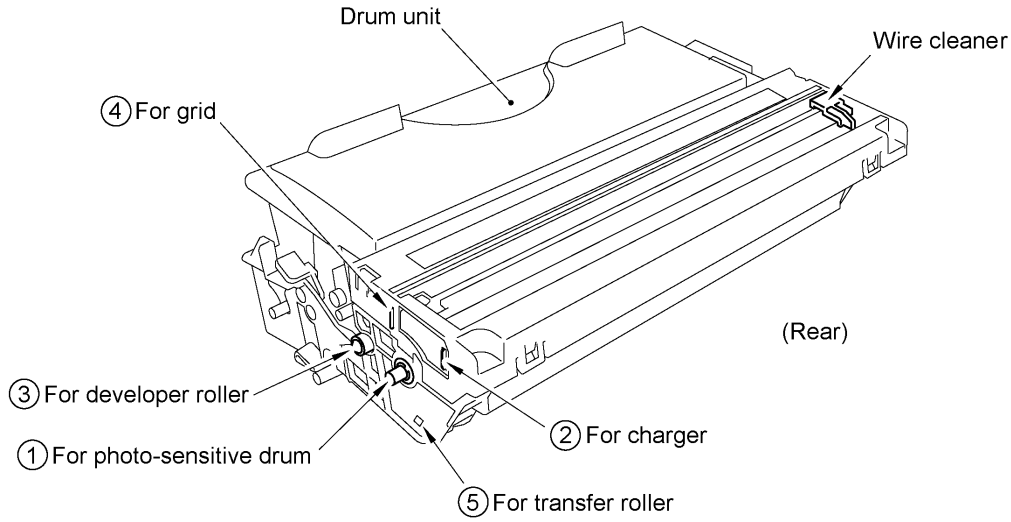
(3) Release the pressure plate from the bosses (arrow) and remove it (arrow).

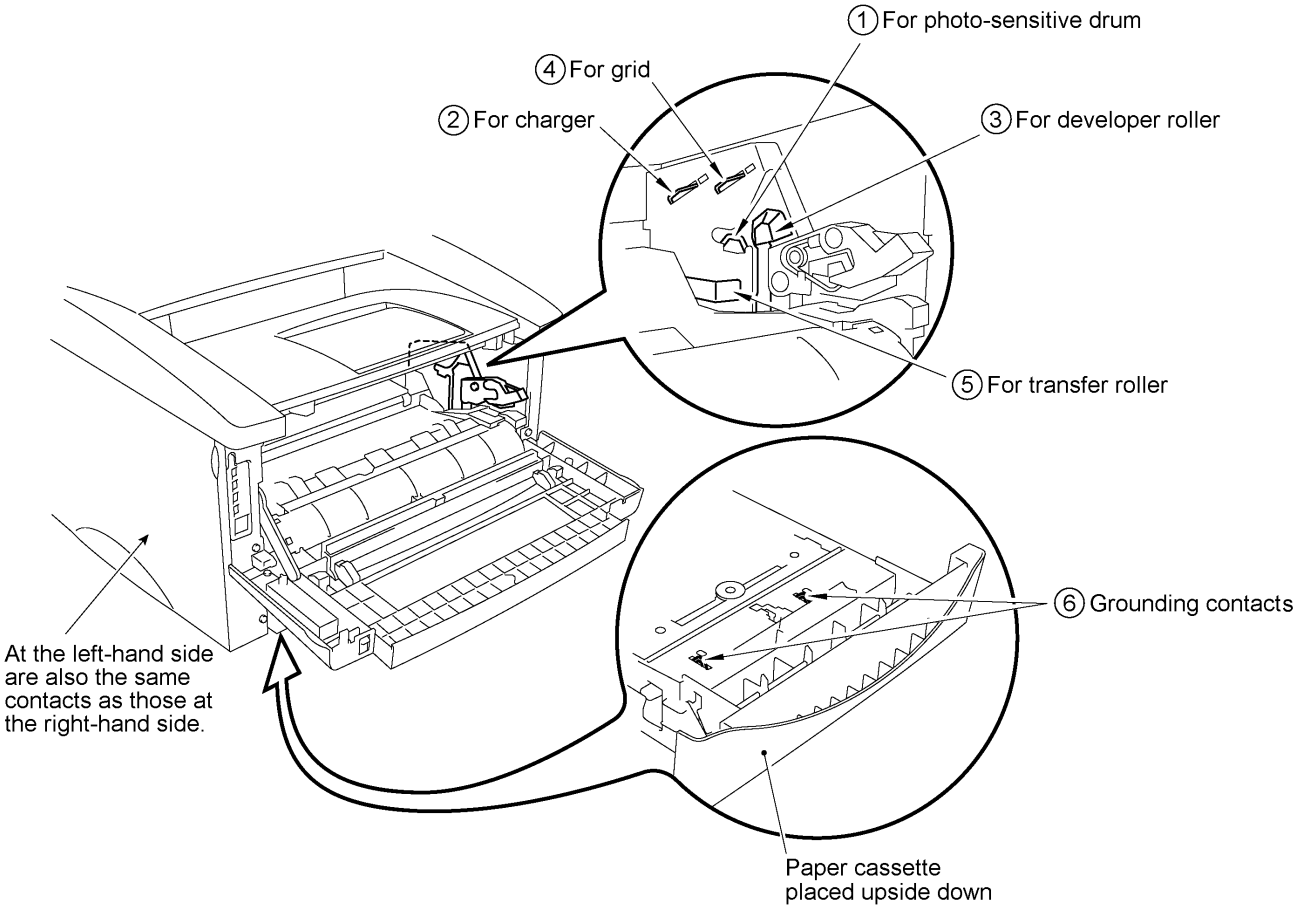
(4) Fully slide the paper rear guide to the front and lift it up (arrow).

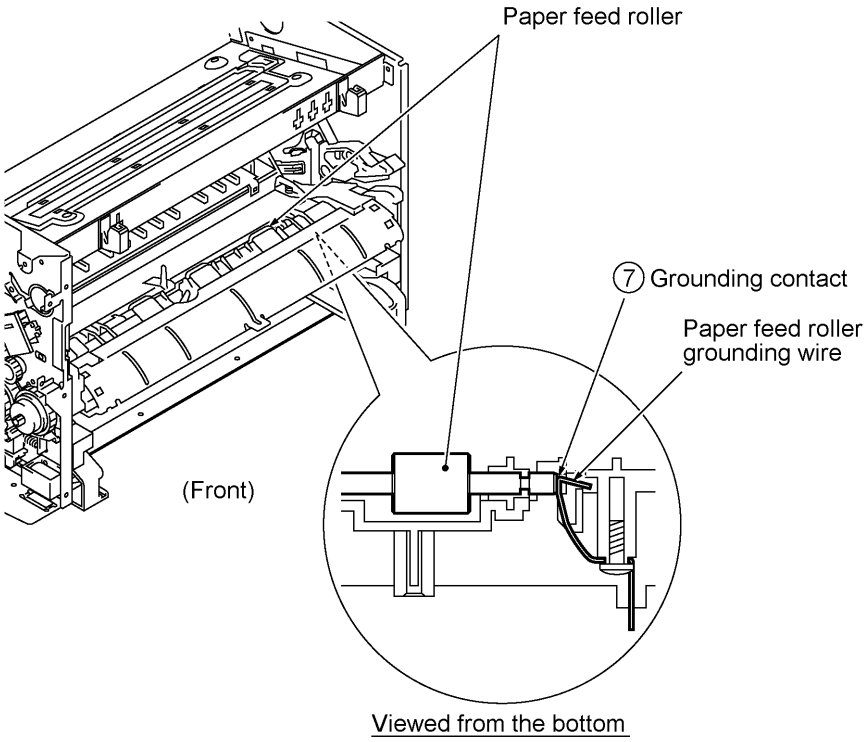


1.29 Cleaning of High-voltage Contacts and Grounding Contacts

If any toner particles, paper dust or dirt are on the contacts, clean them out. This will ensure that power flows correctly to enable printing.




①For photo-sensitive drum
④For grid
②For charger
③For developer roller
⑤For transfer roller
⑥Grounding contacts
At the left-hand side are also the same contacts as those at the right-hand side.
Paper cassette placed upside down

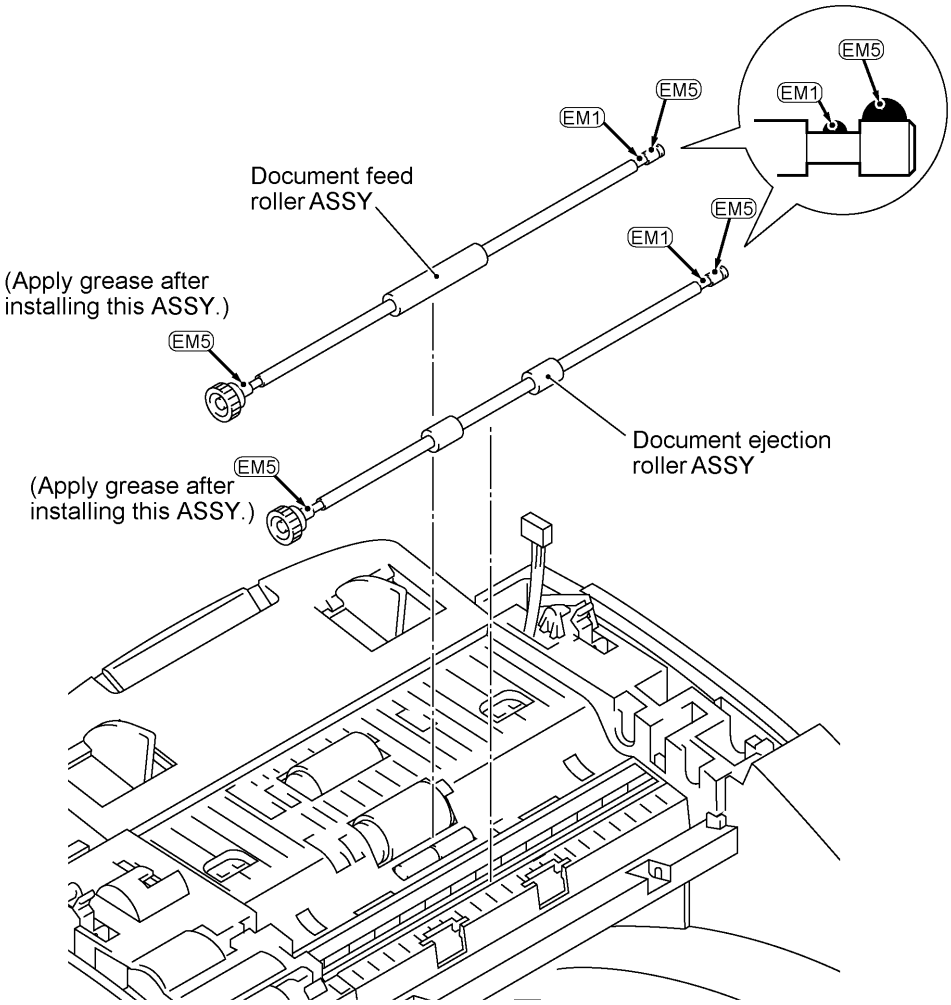

Paper feed roller
⑦ Grounding contact
Paper feed roller grounding wire
(Front)
Viewed from the bottom

2. LUBRICATION

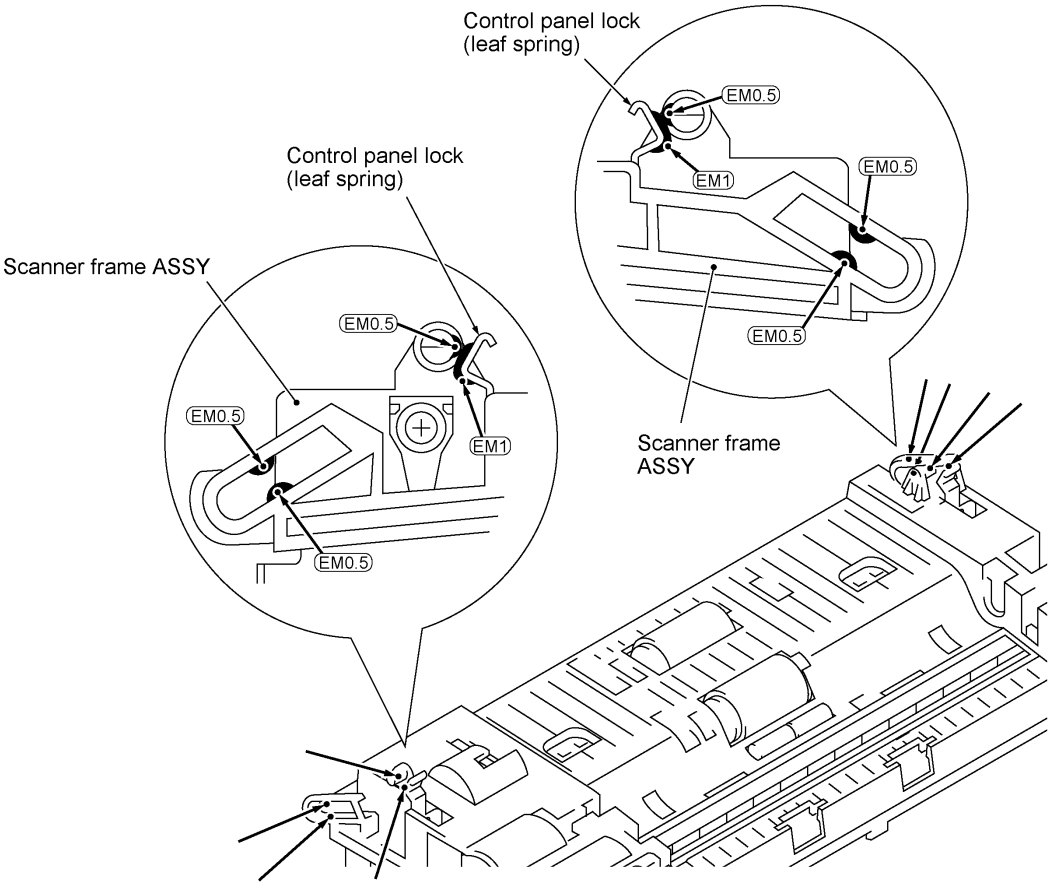
Apply the specified lubricants to the lubrication points as shown below.

Lubricant type (Manufacturer)	Lubricant amount			
	Half of a rice-sized pinch of grease (3 mm^3)	Rice-sized pinch of grease (6 mm^3)	Two rice-sized pinches of grease (12 mm^3)	Five rice-sized pinches of grease (30 mm^3)
Molykote grease EM-30L (Dow Corning)	(EM0.5)	(EM1)	(EM2)	(EM5)
Molykote grease EMD-110 (Dow Corning.)	———	(EMD1)	———	———
Molykote grease PG662 (Dow Corning)	———	(PG1)	———	———

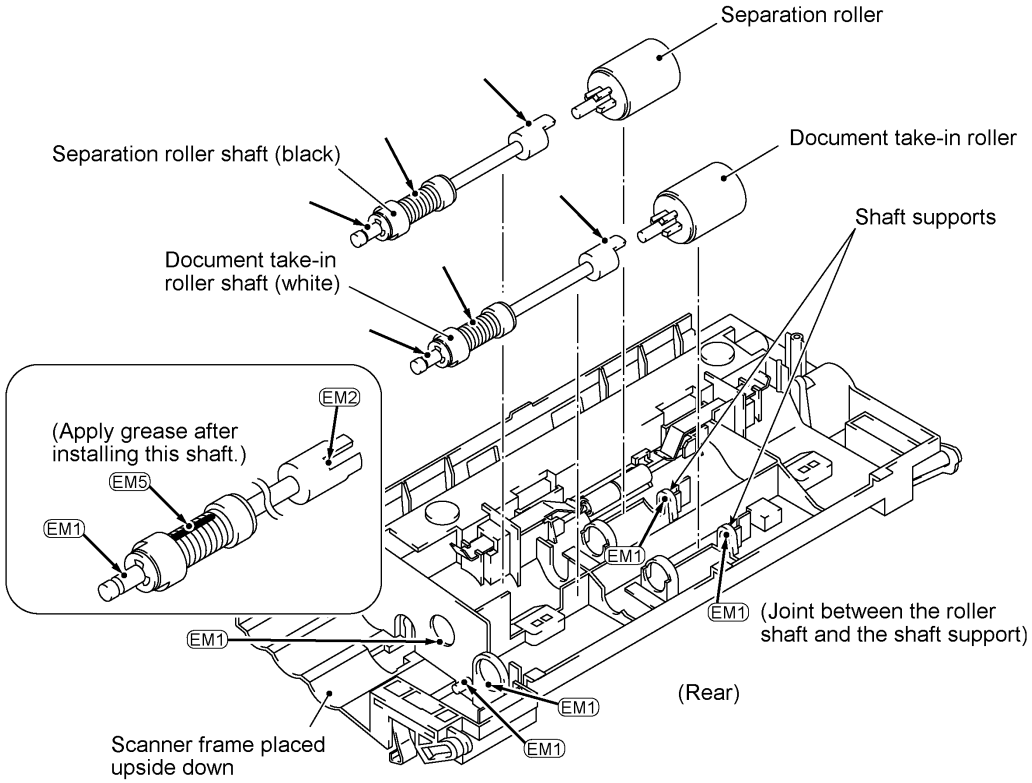
[1] Document feed roller ASSY and document ejection roller ASSY



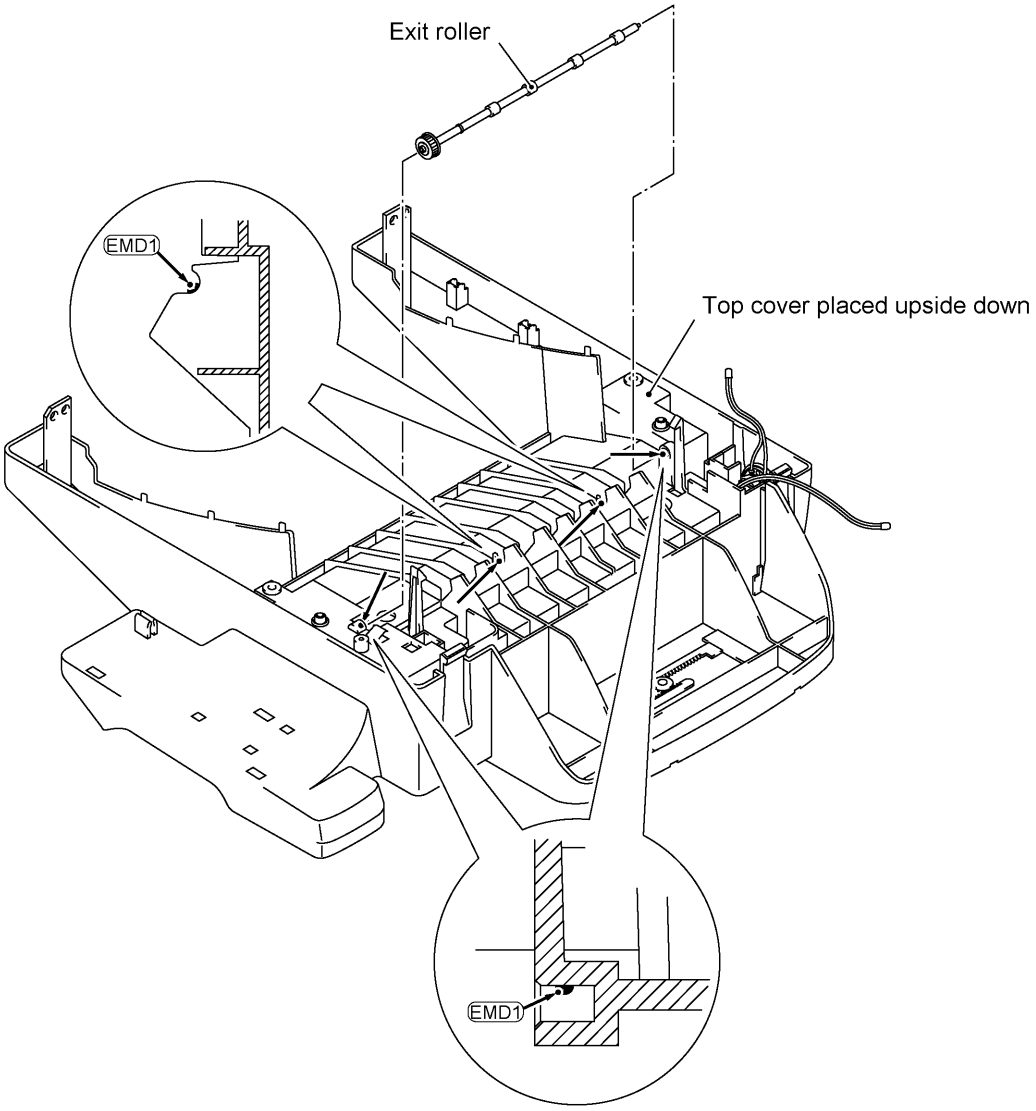
[2] Control panel locks



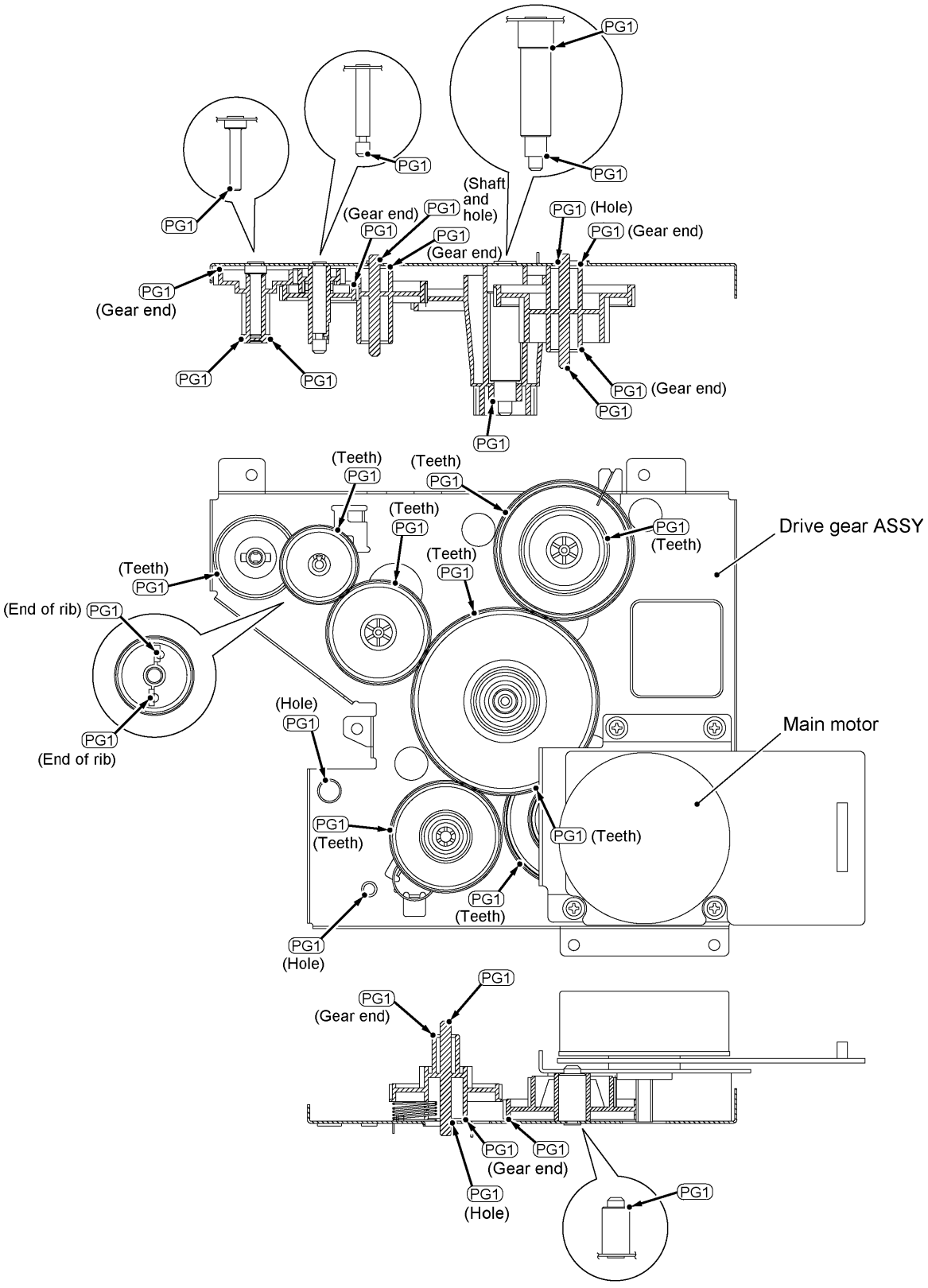
[3] Scanner frame ASSY, document take-in roller and its shaft, and separation roller and its shaft



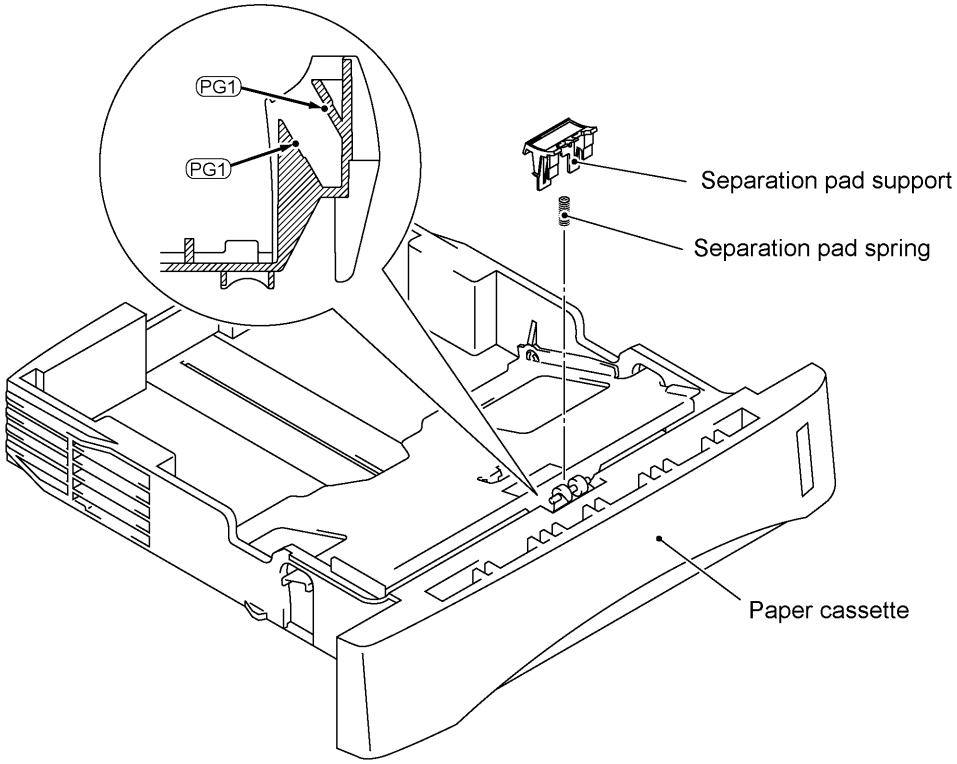
[4] Top cover



[5] Drive gear ASSY



[6] Paper cassette



CHAPTER V.

MAINTENANCE MODE

CHAPTER V. MAINTENANCE MODE

CONTENTS

1. ENTRY INTO THE MAINTENANCE MODE V-1
2. LIST OF MAINTENANCE-MODE FUNCTIONS V-2
3. DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS V-4
   - 3.1 EEPROM Parameter Initialization V-4
   - 3.2 Printout of Scanning Compensation Data V-5
   - 3.3 ADF Performance Test V-7
   - 3.4 Test Pattern 1 ..... V-8
   - 3.5 Firmware Switch Setting and Printout V-9
   - 3.6 Operational Check of LCD V-55
   - 3.7 Operational Check of Control Panel PCB V-55
   - 3.8 Receiver Volume Adjustment (applicable to the American version only) V-57
   - 3.9 Sensor Operational Check V-58
   - 3.10 CIS Scanner Area Setting V-59
   - 3.11 EEPROM Customizing V-59
   - 3.12 Erasure of Received FAX Messages Temporarily Stored in the Flash Memory V-60
   - 3.13 Equipment Error Code Indication V-60
   - 3.14 Output of Transmission Log to the Telephone Line V-61
   - 3.15 Cancellation of the Memory Security Mode (applicable to the European version only) V-61

1. ENTRY INTO THE MAINTENANCE MODE

American models: To make the equipment enter the maintenance mode, press the **Function**, *****, **2**, **8**, **6**, and **4** keys in this order.

|← Within 2 seconds →|

European models: To make the equipment enter the maintenance mode, press the **Menu**, *****, **2**, **8**, **6**, and **4** keys in this order.

|← Within 2 seconds →|

The equipment beeps for approx. one second and displays " ▮▮ MAINTENANCE ▮▮▮ " on the LCD, indicating that it is placed in the initial stage of the maintenance mode, a mode in which the equipment is ready to accept entry from the keys.

To select one of the maintenance-mode functions listed in Section 2, enter the corresponding 2-digit function code with the numerical keys on the control panel. (The details of each maintenance-mode function are described in Section 3.)

NOTES:
- Pressing the **9** key twice in the initial stage of the maintenance mode makes the equipment exit from the maintenance mode, restoring it to the standby state.
- Pressing the **Stop** key after entering only one digit restores the equipment to the initial stage of the maintenance mode.
- If an invalid function code is entered, the equipment resumes the initial stage of the maintenance mode.

2. LIST OF MAINTENANCE-MODE FUNCTIONS

Maintenance-mode Functions

Function Code	Function	Reference Subsection (Page)
01	EEPROM Parameter Initialization	3.1 (V-4)
02	————	————
03	————	————
04	————	————
05	Printout of Scanning Compensation Data	3.2 (V-5)
06	————	————
07	————	————
08	ADF* Performance Test	3.3 (V-7)
09	Test Pattern 1	3.4 (V-8)
10	Firmware Switch Setting	3.5 (V-9)
11	Printout of Firmware Switch Data	3.5 (V-54)
12	Operational Check of LCD	3.6 (V-55)
13	Operational Check of Control Panel PCB (Check of Keys and Buttons)	3.7 (V-55)
14	————	————
15	————	————
16	Receiver Volume Adjustment (applicable to the American version only)	3.8 (V-57)
32	Sensor Operational Check	3.9 (V-58)
55	CIS Scanner Area Setting	3.10 (V-59)
74	EEPROM Customizing	3.11 (V-59)
79	Erasure of Received FAX Messages Temporarily Stored in the Flash Memory (not applicable to the American version)	3.12 (V-60)
82	Equipment Error Code Indication	3.13 (V-60)
87	Output of Transmission Log to the Telephone Line	3.14 (V-61)
91	EEPROM Parameter Initialization (except the telephone number storage area)	3.1 (V-4)
99	Exit from the Maintenance Mode	---- (V-1)

* ADF: Automatic document feeder

- **IMPORTANT** -

Basically, the maintenance-mode functions listed on the previous page should be accessed by service personnel only. However, you may allow end users to access some of these under the guidance of service personnel (e.g., by telephone).

The user-accessible functions (codes 10, 11, 12, 82, 87 and 91) are shaded in the table given on the previous page. Function code 10 accesses the firmware switches WSW01 to WSW43, each of which has eight selectors. You should not allow end users to access all of those selectors, but you may allow them to access user-accessible selectors which are shaded in the firmware switch tables in Subsection 3.5.

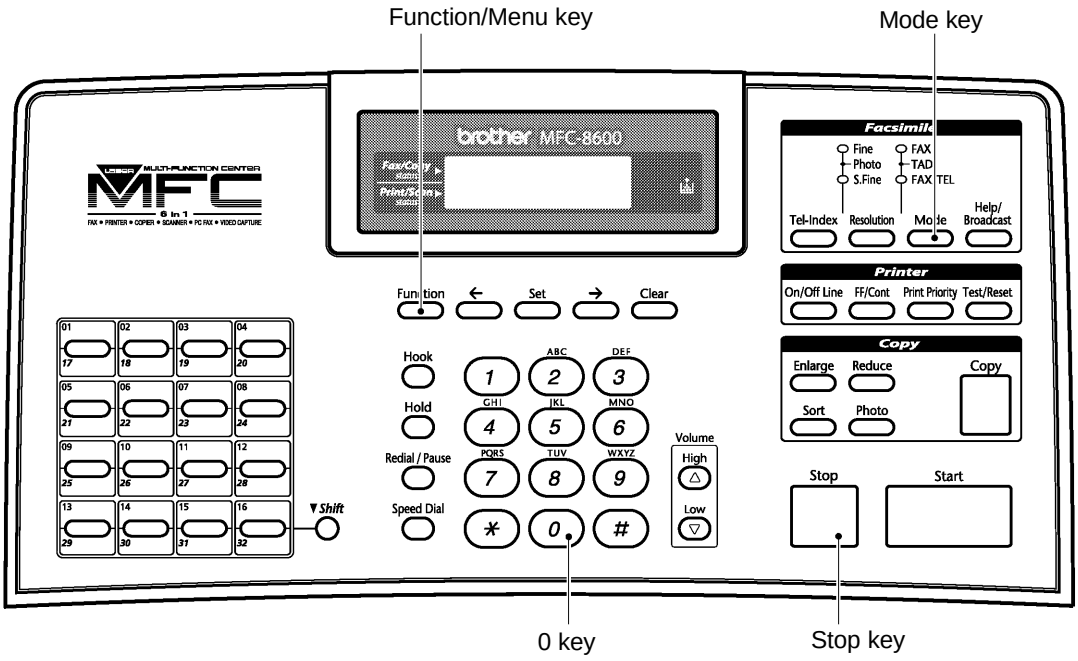
The service personnel should instruct end users to follow the procedure given below.

(1) American models: Press the **Function** and **Mode** keys in this order.
European models: Press the **Menu** and **Mode** keys in this order.
The LCD clears the current display.
NOTE: The **Mode** key is inoperable during standby for redialing and timer.

(2) Press the **0** key.

(3) Enter the desired function code (10, 11, 12, 82, 87, or 91) with the numerical keys.
For function code 10, access the desired firmware switch according to the operating procedure described in Subsection 3.5.

(4) To make the equipment return to the standby state, press the **Stop** key.



3. DETAILED DESCRIPTION OF MAINTENANCE-MODE FUNCTIONS

3.1 EEPROM Parameter Initialization

Function

The equipment initializes the parameters, user switches, and firmware switches registered in the EEPROM, to the initial values. Entering the function code 01 initializes all of the EEPROM areas, but entering 91 does not initialize some areas, as listed below.

<table>
<tr><th>Data item \ Function code</th><th>01</th><th>91</th></tr>
<tr><td>Maintenance-mode functions
User switches
Firmware switches
Remote activation code
Activity report</td><td rowspan="2">All of these will be initialized</td><td>These will be initialized</td></tr>
<tr><td>Station ID data
Outside line number
Telephone function registration
One-touch dialing
Speed dialing
Group dialing</td><td>These will <u>not</u> be initialized</td></tr>
<tr><td>Received FAX messages temporarily stored in the flash memory (Not applicable to the American version)
EEPROM customizing code (4-digit)</td><td colspan="2">These will <u>not</u> be initialized.
(Note that the first digit of the 4-digit customizing code will be initialized to "0." If the code is <u>1</u>001, for example, it will be initialized to <u>0</u>001.)</td></tr>
</table>

NOTE: If you replace the main PCB with one used for other facsimile equipment, carry out this procedure and then customize the EEPROM (maintenance-mode function code 74 in Subsection 3.11).

Operating Procedure

(1) Press the **0** and **1** keys (or the **9** and **1** keys according to your need) in this order in the initial stage of the maintenance mode.

The "PARAMETER INIT" will appear on the LCD.

(2) Upon completion of parameter initialization, the equipment returns to the initial stage of the maintenance mode.

3.2 Printout of Scanning Compensation Data

Function

The equipment prints out the white and black level data for scanning compensation.

Operating Procedure

Do not start this function merely after powering on the equipment but start it after carrying out a sequence of scanning operation. Unless the equipment has carried out any scanning operation, this function cannot print out correct scanning compensation data. This is because at the start of scanning operation, the equipment initializes white and black level data and takes in the scanning compensation reference data.

(1) Press the **0** and **5** keys in this order in the initial stage of the maintenance mode.

The "WHITE LEVEL 1" will appear on the LCD.

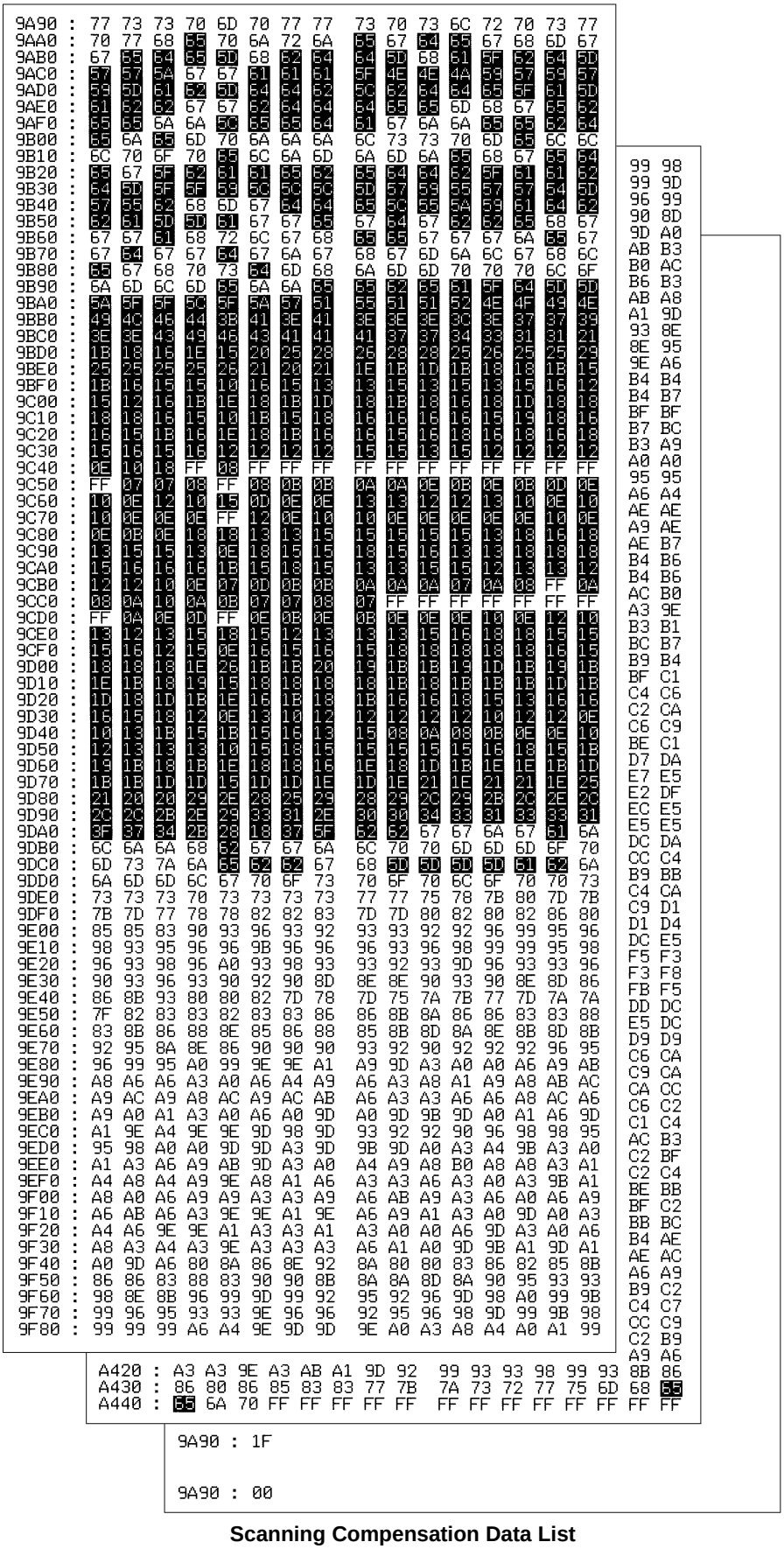
(2) The equipment prints out the scanning compensation data list containing the following:

a) 2-value quantization white level data (2496 bytes)
b) 2-value quantization black level data (1 byte)
c) LED light intensity value, 2-value quantization LED light intensity value, and photo mode LED light intensity value (3 bytes)
d) 2-value quantization A/D-high and photo-mode A/D-high values (2 bytes)
e) A/D-low value (1 byte)
f) Compensation data for background color (1 byte)

(3) Upon completion of recording of the compensation data list, the equipment returns to the initial stage of the maintenance mode.

NOTE: When the equipment prints monochrome images after monochrome scanning, only the green data is valid.

NOTE: If any data is abnormal, its code will be printed in inline style, as shown on the next page.



Scanning Compensation Data List

3.3 ADF Performance Test

Function

The equipment counts the documents fed by the automatic document feeder (ADF) and displays the count on the LCD for checking the ADF performance.

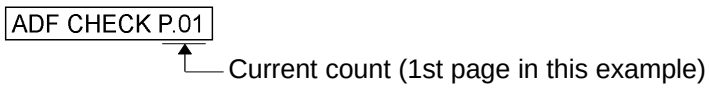
Operating Procedure

(1) Set documents. (Allowable up to the ADF capacity.)

The "DOC. READY" will appear on the LCD.

(2) Press the **0** and **8** keys in this order.

While counting the documents, the equipment feeds them in and out, displaying the current count on the LCD as shown below.



(3) After showing the final count, the equipment beeps for one second. To return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.4 Test Pattern 1

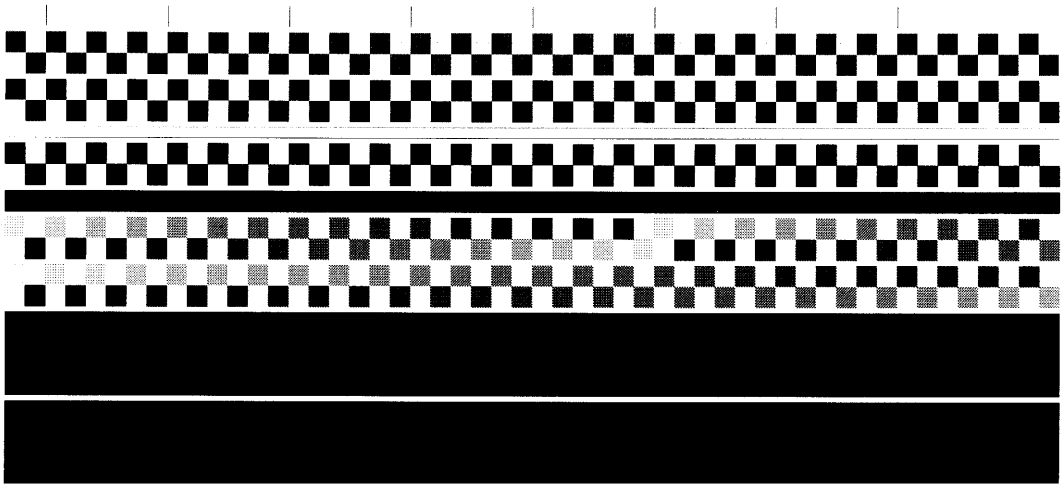
Function

This function, much like the copying function, prints out test pattern 1 to allow the service personnel to check for record data missing or print quality.

Operating Procedure

Press the **0** and **9** keys in this order in the initial stage of the maintenance mode.

The figure below shows test pattern 1.



Test Pattern 1

3.5 Firmware Switch Setting and Printout

[A] Firmware switch setting

Function

The facsimile equipment incorporates the following firmware switch functions (WSW01 through WSW43) which may be activated with the procedures using the control panel keys and buttons. The firmware switches have been set at the factory in conformity to the communications standards and codes of each country. Do not disturb them unless necessary. Some firmware switches may not be applicable in some versions. The firmware switch data list indicates "Not used." for those inapplicable switches.

Firmware Switches (WSW01 through WSW43)

WSW No.	Function	Reference Page
WSW01	Dial pulse setting	V-11
WSW02	Tone signal setting	V-12
WSW03	PABX mode setting	V-13
WSW04	TRANSFER facility setting	V-15
WSW05	1st dial tone and busy tone detection	V-16
WSW06	**Pause** key setting and 2nd dial tone detection	V-18
WSW07	Dial tone setting 1	V-20
WSW08	Dial tone setting 2	V-21
WSW09	Protocol definition 1	V-22
WSW10	Protocol definition 2	V-23
WSW11	Busy tone setting	V-24
WSW12	Signal detection condition setting	V-25
WSW13	Modem setting	V-26
WSW14	AUTO ANS facility setting	V-27
WSW15	REDIAL facility setting	V-28
WSW16	Function setting 1	V-29
WSW17	Function setting 2	V-30
WSW18	Function setting 3	V-31
WSW19	Transmission speed setting	V-32
WSW20	Overseas communications mode setting	V-33
WSW21	TAD setting 1	V-34
WSW22	ECM setting	V-34
WSW23	Communications setting	V-35
WSW24	TAD setting 2	V-36
WSW25	TAD setting 3	V-37
WSW26	Function setting 4	V-38
WSW27	Function setting 5	V-39
WSW28	Function setting 6	V-40
WSW29	Function setting 7	V-41
WSW30	Function setting 8	V-41
WSW31	Function setting 9	V-42
WSW32	Function setting 10	V-43
WSW33	Function setting 11	V-44
WSW34	Function setting 12	V-45
WSW35	Function setting 13	V-45
WSW36	Function setting 14	V-46

Firmware Switches (WSW01 through WSW43) *Continued*

WSW No.	Function	Reference Page
WSW37	Function setting 15	V-47
WSW38	Function setting 16	V-48
WSW39	Function setting 17	V-49
WSW40	Function setting 18	V-50
WSW41	Function setting 19	V-51
WSW42	Function setting 20	V-52
WSW43	Function setting 21	V-53

Operating Procedure

(1) Press the **1** and **0** keys in this order in the initial stage of the maintenance mode.

The equipment displays the "WSW00" on the LCD and becomes ready to accept a firmware switch number.

(2) Enter the desired number from the firmware switch numbers (01 through 43).

The following appears on the LCD:

WSWXX = 0 0 0 0 0 0 0 0

(3) Use the ◀ and ▶ keys to move the cursor to the selector position to be modified.

(4) Enter the desired number using the **0** and **1** keys.

(5) Press the **Set** key. This operation saves the newly entered selector values onto the EEPROM and readies the equipment for accepting a firmware switch number.

(6) Repeat steps (2) through (5) until the modification for the desired firmware switches is completed.

(7) Press the **Set** or **Stop** key to return the equipment to the initial stage of the maintenance mode.

NOTES:
- To cancel this operation and return the equipment to the initial stage of the maintenance mode during the above procedure, press the **Stop** key.
- If there is a pause of more than one minute after a single-digit number is entered for double-digit firmware switch numbers, the equipment will automatically return to the initial stage of the maintenance mode.

Note

The user-accessible selectors of the firmware switches are shaded in the tables given on the following pages.

Detailed Description for the Firmware Switches

WSW01 (Dial pulse setting)

Selector No.	Function	Setting and Specifications
1 2	Dial pulse generation mode	No. 1 2 0 0 : N 0 1 : N+1 1 0 : 10-N 1 1 : N
3 4	Break time length in pulse dialing	No. 3 4 0 0 : 60 ms 0 1 : 67 ms 1 0 : 40 ms (for 16 PPS) 1 1 : 64 ms (at 106-ms intervals)
5 6	Inter-digit pause	No. 5 6 0 0 : 800 ms 0 1 : 850 ms 1 0 : 950 ms 1 1 : 600 ms
7	Switching between pulse (DP) and tone (PB) dialing, by the function switch	0: Yes 1: No
8	Default dialing mode, pulse (DP) or tone (PB) dialing	0: PB 1: DP

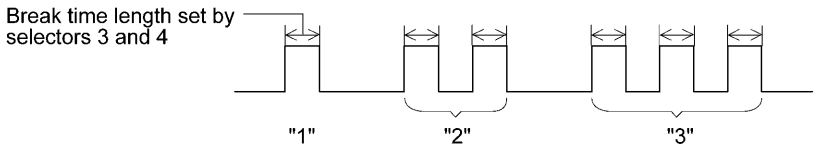
- **Selectors 1 and 2: Dial pulse generation mode**

  These selectors set the number of pulses to be generated in pulse dialing.

  N: Dialing "N" generates "N" pulses. (Dialing "0" generates 10 pulses.)
  N + 1: Dialing "N" generates "N + 1" pulses.
  10 - N: Dialing "N" generates "10 - N" pulses.

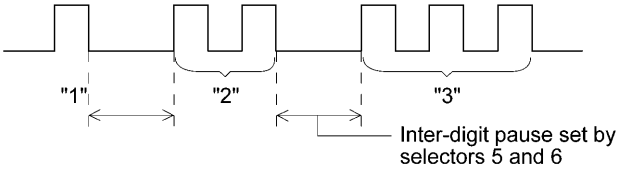
- **Selectors 3 and 4: Break time length in pulse dialing**

  These selectors set the break time length in pulse dialing.
  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selectors 5 and 6: Inter-digit pause**

  These selectors set the inter-digit pause in pulse dialing.
  (Example: If "1," "2," and "3" are dialed when N is set by selectors 1 and 2.)



- **Selector 7: Switching between pulse (DP) and tone (PB) dialing, by the function switch**

  This selector determines whether or not the dialing mode may be switched between the pulse (DP) and tone (PB) dialing by using the function switch.

- **Selector 8: Default dialing mode, pulse (DP) or tone (PB) dialing**

  This selector sets the default dialing mode (pulse dialing or tone dialing) which may be changed by the function switch. If the user switches it with the function switch when selector 7 is set to "0," the setting specified by this selector will also be switched automatically.

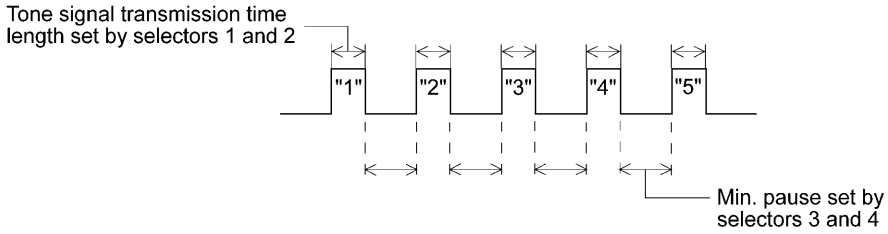
WSW02 (Tone signal setting)

Selector No.	Function	Setting and Specifications
1 2	Tone signal transmission time length	No. 1 2 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 100 ms
3 4	Min. pause in tone dialing	No. 3 4 0 0 : 70 ms 0 1 : 80 ms 1 0 : 90 ms 1 1 : 140 ms
5 | 8	Attenuator for pseudo ring backtone to the line (selectable in the range of 0-15 dB)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 1 through 4: Tone signal transmission time length and Min. pause in tone dialing**

  These selectors set the tone signal transmission time length and minimum pause in tone dialing.

  (Example: If "1," "2," "3," "4," and "5" are dialed.)



- **Selectors 5 through 8: Attenuator for pseudo ring backtone to the line**

  These selectors are used to adjust the sound level of beep generated as a ring backtone in the F/T mode or as a signal during remote control operation or at the start of ICM recording.

  Setting two or more selectors to “1” produces addition of attenuation assigned to each selector.

WSW03 (PABX* mode setting)

Selector No.	Function	Setting and Specifications
1	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
2 | 4	Min. detection time length of PABX* dial tone, required for starting dialing	No. 2 3 4 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
5	CNG detection when sharing a modular wall socket with a telephone	0: A 1: B
6 7	Dial tone detection in PABX*	No. 6 7 0 0 : No detection (3.5 sec. WAIT) 0 1 : No detection (5 sec. WAIT) 1 0 : No detection (7 sec. WAIT) 1 1 : Detection (Frequency only)
8	Not used.	

* PABX: Private automatic branch exchange

NOTE: Selectors 2 through 4, 6 and 7 are not applicable where no PABX is installed.

- **Selectors 1 and 5: CNG detection when sharing a modular wall socket with a telephone**

  These selectors determine whether or not the equipment detects a CNG signal when a line is connected to a telephone sharing a modular wall socket with the equipment. Upon detection of CNG signals by the number of cycles specified by these selectors, the equipment interprets CNG as an effective signal and then starts FAX reception.

Selector No. 1	Selector No. 5	Cycle
0 (A)	0 (A)	0.5 cycle
0 (A)	1 (B)	1.0 cycle
1 (B)	0 (A)	1.5 cycles
1 (B)	1 (B)	2.0 cycles

- **Selectors 2 through 4: Min. detection time length of PABX dial tone, required for starting dialing**

  Upon detection of the PABX dial tone for the time length set by these selectors, the equipment starts dialing.

  These selectors are effective only when both selectors 6 and 7 are set to "1" (Detection).

- **Selectors 6 and 7: Dial tone detection in PABX**

  These selectors activate or deactivate the dial tone detection function which detects a dial tone when a line is connected to the PABX.

  Setting both of these selectors to "1" activates the dial tone detection function so that the equipment starts dialing upon detection of a dial tone when a line is connected.

  Other setting combinations deactivate the dial tone detection function so that the equipment starts dialing after the specified WAIT (3.5, 5.0, or 7.0 sec.) without detection of a dial tone when a line is connected.

WSW04 (TRANSFER facility setting)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 6	Earth time length for earth function	No. 5 6 0 0 : 200 ms 0 1 : 300 ms 1 0 : 500 ms 1 1 : 700 ms
7 8	Break time length for flash function	No. 7 8 0 0 : 80 ms 0 1 : 110 ms 1 0 : 250 ms 1 1 : 500 ms

NOTE: Selectors 5 through 8 are not applicable in those countries where no transfer facility is supported.

- **Selectors 5 and 6: Earth time length for earth function**

  These selectors set the short-circuiting time length of the telephone line (La or Lb) to ground.

  This setting is effective only when the earth function is selected for the R key by using the function switch.

- **Selectors 7 and 8: Break time length for flash function**

  These selectors set the break time length.

  This setting is effective only when the flash function is selected for the R key by using the function switch.

WSW05 (1st dial tone and busy tone detection)

Selector No.	Function	Setting and Specifications
1 | 3	1st dial tone detection	No. 1 2 3 0 0 0 : 3.5 sec. WAIT 0 0 1 : 7.0 sec. WAIT 0 1 0 : 10.5 sec. WAIT 0 1 1 : 14.0 sec. WAIT 1 0 0 : 17.5 sec. WAIT 1 0 1 : 21.0 sec. WAIT 1 1 0 : 24.5 sec. WAIT 1 1 1 : Detection (Without WAIT)
4	Max. pause time allowable for remote ID code detection	0 : 2 seconds 1: 1 second
5 6	Busy tone detection in automatic sending mode	No. 5 6 0 0 : No detection 0 1 : Detection only after dialing 1 0 : No detection 1 1 : Detection before and after dialing
7	Busy tone detection in automatic receiving mode	0 : Yes 1: No
8	Not used.	

NOTE: Selectors 5 through 7 are not applicable in those countries where no busy tone detection is supported.

- **Selectors 1 through 3: 1st dial tone detection**

  These selectors activate or deactivate the 1st dial tone detection function which detects the 1st dial tone issued from the PSTN when a line is connected to the PSTN.

  Setting all of these selectors to "1" activates the dial tone detection function so that the equipment starts dialing upon detection of a dial tone when a line is connected. For the detecting conditions of the 1st dial tone, refer to WSW07 and WSW08.

  Other setting combinations deactivate the dial tone detection function so that the equipment starts dialing after the specified WAIT (3.5, 7.0, 10.5, 14.0, 17.5, 21.0, or 24.5 seconds) without detection of a dial tone when a line is connected to the PSTN.

- **Selector 4: Max. pause time allowable for remote ID code detection**

  This selector sets the maximum pause time allowable for detecting the second digit of a remote ID code after detection of the first digit in remote reception.

  If selector 4 is set to "0" (2 seconds), for instance, only a remote ID code whose second digit is detected within 2 seconds after detection of the first digit will become effective so as to activate the remote function.

- **Selectors 5 and 6: Busy tone detection in automatic sending mode**

  These selectors determine whether or not the equipment automatically disconnects a line upon detection of a busy tone in automatic sending mode.

  Setting selector 6 to "0" ignores a busy tone so that the equipment does not disconnect the line.

  Setting selectors 5 and 6 to "0" and "1," respectively, makes the equipment detect a busy tone only after dialing and disconnect the line.

  Setting both of selectors 5 and 6 to "1" makes the equipment detect a busy tone before and after dialing and then disconnect the line.

- **Selector 7: Busy tone detection in automatic receiving mode**

  This selector determines whether or not the equipment automatically disconnects a line upon detection of a busy tone in automatic receiving mode.

WSW06 (Pause key setting and 2nd dial tone detection)

Selector No.	Function	Setting and Specifications
1 | 3	**Pause** key setting and 2nd dial tone detection	No. 1 2 3 0 0 0 : No pause 0 0 1 : 3.5 sec. WAIT 0 1 0 : 7 sec. WAIT 0 1 1 : 10.5 sec. WAIT 1 0 0 : 14 sec. WAIT 1 1 0 : 2nd dial tone detection only in pulse dialing (DP) system 1 0 1 : 2nd dial tone detection both in DP and push-button (PB) dialing system 1 1 1 :
4 | 6	Detection of 2nd dial tone	No. 4 5 6 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
7	No. of 2nd dial tone detection times	0: Once 1: Twice
8	2nd dial tone interrupt detecting time	0: 30 ms 1: 50 ms

- **Selectors 1 through 3: Pause key setting and 2nd dial tone detection**

Selectors 1	2	3	
0	0	0	No WAIT is inserted even if the **Pause** key is pressed.
0	0	1	If you press the **Pause** key during dialing, the facsimile equipment will insert WAIT as defined in the above table. If the **Pause** key is pressed repeatedly, the equipment inserts the specified WAIT multiplied by the number of depressions. It applies also in hook-up dialing.
0	1	0	
0	1	1	
1	0	0	
1	0	1	When these selectors are set to "1, 0, 1": If you press the **Pause** key during dialing, the equipment will wait for the 2nd dial tone to be sent via the communications line. When these selectors are set to "1, 1, 0" or "1, 1, 1": If you press the **Pause** key during dialing, the equipment will first wait for the 2nd dial tone to be sent via the communications line. After that, the equipment will insert a WAIT of 3.5 seconds. If no 2nd dial tone is received within the specified time length (set by WSW08), the equipment will disconnect the line if in automatic dialing, or it will start transmitting the dial signal if given after depression of the **Pause** key in hook-up dialing.
1	1	0	
1	1	1	

- **Selectors 4 through 6: Detection of 2nd dial tone**

  Upon detection of the 2nd dial tone for the time length specified by these selectors, the equipment starts dialing.

  This setting is effective only when the 2nd dial tone detection function is activated by selectors 1 through 3 (Setting 101, 110, or 111).

  This function does not apply in those countries where no dial tone detection function is supported.

- **Selector 7: No. of 2nd dial tone detection times**

  This selector sets the number of dial tone detection times required for starting dialing.

- **Selector 8: 2nd dial tone interrupt detecting time**

  This selector sets the allowable time length of an interrupt which should not be interpreted as an interrupt in the 2nd tone dialing.

WSW07 (Dial tone setting 1)

Selector No.	Function	Setting and Specifications
1 2	Frequency band range	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 X : Widens by 10 Hz
3	Line current detection	0: No 1: Yes
4 | 6	2nd dial tone detection level (Z = 600 Ω)	No. 4 5 6 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm
7	1st dial tone interrupt detecting time	0: 30 ms 1: 50 ms
8	Not used.	

NOTE: Selectors 1 through 7 are not applicable in those countries where no dial tone or line current detection is supported, e.g., U.S.A.

- **Selectors 1 and 2: Frequency band range**

  These selectors set the frequency band for the 1st dial tone and the busy tone (before dialing) to be detected.

  This setting is effective only when selectors 1 through 3 of WSW05 are set to "1,1,1."

- **Selector 3: Line current detection**

  This selector determines whether or not the equipment should detect a line current before starting dialing.

- **Selectors 4 through 6: 2nd dial tone detection level**

  These selectors set the detection level of the 2nd dial tone.

- **Selector 7: 1st dial tone interrupt detecting time**

  This selector sets the allowable time length of an interrupt which should not be interpreted as an interrupt in the 1st dial tone dialing.

WSW08 (Dial tone setting 2)

Selector No.	Function	Setting and Specifications
1 | 3	1st dial tone detection time length	No. 1 2 3 0 0 0 : 50 ms 0 0 1 : 210 ms 0 1 0 : 500 ms 0 1 1 : 800 ms 1 0 0 : 900 ms 1 0 1 : 1.5 sec. 1 1 0 : 2.0 sec. 1 1 1 : 2.5 sec.
4 5	Time-out length for 1st and 2nd dial tone detection	No. 4 5 0 0 : 10 sec. 0 1 : 20 sec. 1 0 : 15 sec. 1 1 : 30 sec.
6 | 8	Detection level of 1st dial tone and busy tone before dialing	No. 6 7 8 0 0 0 : -21 dBm 0 0 1 : -24 dBm 0 1 0 : -27 dBm 0 1 1 : -30 dBm 1 0 0 : -33 dBm 1 0 1 : -36 dBm 1 1 0 : -39 dBm 1 1 1 : -42 dBm

NOTE: The WSW08 is not applicable in those countries where no dial tone detection is supported, e.g., U.S.A.

- **Selectors 1 through 3: 1st dial tone detection time length**

  Upon detection of the 1st dial tone for the time length set by these selectors, the equipment starts dialing.

  This setting is effective only when selectors 1 through 3 of WSW05 are set to "1,1,1."

- **Selectors 4 and 5: Time-out length for 1st and 2nd dial tone detection**

  These selectors set the time-out length for the 1st and 2nd dial tone detection so that the equipment waits dial tone input for the specified time length and disconnects itself from the line when no dial tone is inputted.

WSW09 (Protocol definition 1)

Selector No.	Function	Setting and Specifications
1	Frame length selection	0: 256 octets 1: 64 octets
2	Use of non-standard commands	0: Allowed 1: Prohibited
3 4	No. of retries	No. 3 4 0 0 : 4 times 0 1 : 3 times 1 0 : 2 times 1 1 : 1 time
5	T5 timer	0: 300 sec. 1: 60 sec.
6	T1 timer	0: 35 sec. 1: 40 sec.
7 8	Elapsed time for time-out control for no response from the called station in automatic sending mode	No. 7 8 0 0 : 60 sec. (55 sec. for US and Canada) 0 1 : 140 sec. 1 0 : 90 sec. 1 1 : 35 sec.

NOTE: Selectors 1 through 6 are not applicable in those models which do not support ECM.

- **Selector 1: Frame length selection**

  Usually a single frame consists of 256 octets (1 octet = 8 bits). For communications lines with higher bit error rate, however, set selector 1 to "1" so that the facsimile equipment can divide a message into 64-octet frames.

  Remarks: The error correction mode (ECM) is a facsimile transmission manner in which the equipment divides a message into frames for transmission so that if any data error occurs on the transmission line, the equipment retransmits only those frames containing the error data.

- **Selector 2: Use of non-standard commands**

  If this selector is set to "0," the equipment may use non-standard commands (the machine's native-mode commands, e.g., NSF, NSC, and NSS) for communications. If it is set to "1," the equipment will use standard commands only.

- **Selectors 3 and 4: No. of retries**

  These selectors set the number of retries in each specified modem transmission speed.

- **Selector 5: T5 timer**

  This selector sets the time length for the T5 timer.

- **Selector 6: T1 timer**

  This selector sets the time length for the T1 timer.

- **Selectors 7 and 8: Elapsed time for time-out control**

  If the equipment receives no response (no G3 command) from the called terminal in automatic sending during the time set by these selectors, it disconnects the line.

WSW10 (Protocol definition 2)

Selector No.	Function		Setting and Specifications
1	Not used.		
2	Time length from transmission of the last dial digit to CML ON		0: 100 ms 1: 50 ms
3	Time length from CML ON to CNG transmission		0: 2 sec. 1: 4 sec.
4	Time length from CML ON to CED transmission (except for facsimile-to-telephone switching)		0: 0.5 sec. 1: 2 sec.
5 6	No. of training retries		No. 5 6 0 0 : 1 time 0 1 : 2 times 1 0 : 3 times 1 1 : 4 times
7	Encoding system (Compression)	MR	0: Allowed 1: Not allowed
8		MMR	0: Allowed 1: Not allowed

- **Selector 2: Time length from transmission of the last dial digit to CML ON**

  This selector sets the time length from when the equipment transmits the last dial digit until the CML relay comes on.

- **Selector 3: Time length from CML ON to CNG transmission**

  This selector sets the time length until the equipment transmits a CNG after it turns on the CML relay.

- **Selector 4: Time length from CML ON to CED transmission**

  This selector sets the time length until the equipment transmits a CED after it turns on the CML relay. This setting does not apply to switching between facsimile and telephone.

- **Selectors 5 and 6: No. of training retries**

  These selectors set the number of training retries to be repeated before automatic fallback.

- **Selectors 7 and 8: Encoding system (Compression)**

  This selector determines whether or not use of the MR/MMR coding system will be allowed.

WSW11 (Busy tone setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band range	No. 1 2 0 0 : Narrows by 10 Hz 0 1 : Initial value 1 x : Widens by 10 Hz
3	Not used.	
4	ON/OFF time length ranges (More than one setting allowed)	1: 400-600/400-600 ms
5		1: 175-440/175-440 ms
6		1: 700-800/700-800 ms
7		1: 110-410/320-550 ms
8		1: 100-660/100-660 ms

NOTE: WSW11 is not applicable in those countries where no busy tone detection is supported.

NOTE: The setting of WSW11 is effective only when selectors 5 and 6 of WSW05 are set to "0, 1" or "1, 1" (Busy tone detection).

- **Selectors 1 and 2: Frequency band range**

  These selectors set the frequency band for busy tone to be detected.

- **Selectors 4 through 8: ON/OFF time length ranges**

  These selectors set the ON and OFF time length ranges for busy tone to be detected. If more than one selector is set to "1," the ranges become wider. For example, if selectors 4 and 5 are set to "1," the ON and OFF time length ranges are from 175 to 600 ms.

WSW12 (Signal detection condition setting)

Selector No.	Function	Setting and Specifications
1 2	Min. OFF time length of calling signal (Ci)	No. 1 2 0 0 : 1500 ms 0 1 : 500 ms 1 0 : 700 ms 1 1 : 900 ms
3 4	Max. OFF time length of calling signal (Ci)	No. 3 4 0 0 : 6 sec. 0 1 : 7 sec. 1 0 : 9 sec. 1 1 : 11 sec.
5 6	Detecting time setting	No. 5 6 0 0 : 800 ms 0 1 : 200 ms 1 0 : 250 ms 1 1 : 150 ms
7 8	Not used.	

- **Selectors 1 through 4: Min. and max. OFF time length of calling signal (Ci)**

  If the equipment detects the OFF state of calling signal (Ci) for a time length which is greater than the value set by selectors 1 and 2 and less than the value set by selectors 3 and 4, it interprets the Ci signal as OFF.

- **Selectors 5 and 6: Detecting time setting**

  These selectors set the time length required to make the equipment acknowledge itself to be called. That is, if the equipment continuously detects calling signals with the frequency set by selectors 1 through 4 of WSW14 during the time length set by these selectors 5 and 6, it acknowledges the call.

WSW13 (Modem setting)

Selector No.	Function	Setting and Specifications
1 2	Cable equalizer	No. 1 2 0 0 : 0 km 0 1 : 1.8 km 1 0 : 3.6 km 1 1 : 5.6 km
3 4	Reception level	No. 3 4 0 0 : -43 dBm 0 1 : -47 dBm 1 0 : -49 dBm 1 1 : -51 dBm
5 | 8	Modem attenuator	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

The modem should be adjusted according to the user's line conditions.

- **Selectors 1 and 2: Cable equalizer**

  These selectors are used to improve the pass-band characteristics of analogue signals on a line. (Attenuation in the high-band frequency is greater than in the low-band frequency.)

  Set these selectors according to the distance from the telephone switchboard to the facsimile equipment.

- **Selectors 3 and 4: Reception level**

  These selectors set the optimum receive signal level.

- **Selectors 5 through 8: Modem attenuator**

  These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies to G3 protocol signals.

  Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

  This setting will be limited if selector 8 of WSW23 is set to "0."

WSW14 (AUTO ANS facility setting)

Selector No.	Function	Setting and Specifications
1 2	Frequency band selection (Lower limit)	No. 1 2 0 0 : 13 Hz 0 1 : 15 Hz 1 0 : 23 Hz 1 1 : 20 Hz
3 4	Frequency band selection (Upper limit)	No. 3 4 0 0 : 30 Hz 0 1 : 55 Hz 1 X : 70 Hz
5 | 8	No. of rings in AUTO ANS mode	No. 5 6 7 8 0 0 0 0 : Fixed to once 0 0 0 1 : Fixed to 2 times 0 0 1 0 : Fixed to 3 times 0 0 1 1 : Fixed to 4 times 0 1 0 0 : 1 to 2 times 0 1 0 1 : 1 to 3 times 0 1 1 0 : 1 to 4 times 0 1 1 1 : 1 to 5 times 1 0 0 0 : 2 to 3 times 1 0 0 1 : 2 to 4 times 1 0 1 0 : 2 to 5 times 1 0 1 1 : 2 to 6 times 1 1 0 0 : 1 to 10 times 1 1 0 1 : 2 to 10 times 1 1 1 0 : 3 to 5 times 1 1 1 1 : 4 to 10 times

- **Selectors 1 through 4: Frequency band selection**

  These selectors are used to select the frequency band of calling signals for activating the AUTO ANS facility.

  In the French versions, if the user sets the PBX to OFF from the control panel, the setting made by selectors 1 and 2 will take no effect and the frequency's lower limit will be fixed to 32 Hz. (Even if the setting made by these selectors does not apply, it will be printed on the configuration list.)

- **Selectors 5 through 8: No. of rings in AUTO ANS mode**

  These selectors set the number of rings to initiate the AUTO ANS facility.

WSW15 (REDIAL facility setting)

Selector No.	Function	Setting and Specifications
1 2	Selection of redial interval	No. 1 2 0 0 : 5 minutes 0 1 : 1 minute 1 0 : 2 minutes 1 1 : 3 minutes
3 | 6	No. of redialings	No. 3 4 5 6 0 0 0 0 : 16 times 0 0 0 1 : 1 times 0 0 1 0 : 2 times 0 0 1 1 : 3 times | | 1 1 1 1 : 15 times
7	Redialing for no response sent from the called terminal	0: Redialing 1: No redialing
8	Not used.	

NOTE: Selector 7 is not applicable in those countries where no busy tone detection is supported.

- **Selectors 1 through 6: Selection of redial interval and No. of redialings**

  The equipment redials by the number of times set by selectors 3 through 6 at intervals set by selectors 1 and 2.

  This setting is effective only when selector 7 is set to "0."

- **Selectors 7: Redialing for no response sent from the called terminal**

  This selector determines whether or not the equipment redials if no G3 command response comes from the called station after dialing within the time length set by selectors 7 and 8 of WSW09.

WSW16 (Function setting 1)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	CCITT superfine recommendation	0: OFF 1: ON
3 | 6	Not used.	
7	Max. document length limitation	0: 400 cm 1: 90 cm
8	**Stop** key pressed during reception	0: Not functional 1: Functional

- **Selector 2: CCITT superfine recommendation**

  If this selector is set to "1," the equipment communicates in CCITT recommended superfine mode (15.4 lines/mm). If it is set to "0," it communicates in native superfine mode.

- **Selector 7: Max. document length limitation**

  This selector is used to select the maximum length of a document to be sent.

- **Selector 8: Stop key pressed during reception**

  If this selector is set to "1," pressing the **Stop** key can stop the current receiving operation. The received data will be lost.

WSW17 (Function setting 2)

Selector No.	Function	Setting and Specifications
1 2	Off-hook alarm	No. 1 2 0 0 : No alarm 0 1 : Always valid 1 X : Valid except when 'call reservation' is selected.
3 4	Not used.	
5	Calendar clock type	0: U.S.A. type 1: European type
6	Not used.	
7	Non-ring reception	0: OFF 1: ON
8	Not used.	

- **Selectors 1 and 2: Off-hook alarm**

  These selectors activate or deactivate the alarm function which sounds an alarm when the communication is completed with the handset being off the hook.

- **Selector 5: Calendar clock type**

  If this selector is set to "0" (USA), the MM/DD/YY hh:mm format applies; if it is set to "1" (Europe), the DD/MM/YY hh:mm format applies: DD is the day, MM is the month, YY is the last two digits of the year, hh is the hour, and mm is the minute.

- **Selector 7: Non-ring reception**

  Setting this selector to "1" makes the equipment receive calls without ringer sound if the ring delay is set to 0.

WSW18 (Function setting 3)

Selector No.	Function	Setting and Specifications
1	Not used.	
2 3	Detection enabled time for CNG and no tone	No. 2 3 0 0 : 40 sec. 0 1 : 0 sec. (No detection) 1 0 : 5 sec. 1 1 : 80 sec.
4 5	Not used.	
6	Registration of station ID	0: Permitted 1: Prohibited
7 8	Tone sound monitoring	No. 7 8 0 X : No monitoring 1 0 : Up to phase B at the calling station only 1 1 : All transmission phases both at the calling and called stations

- **Selectors 2 and 3: Detection enabled time for CNG and no tone**

  After the line is connected via the external telephone or by picking up the handset of the facsimile equipment, the equipment can detect a CNG signal or no tone for the time length specified by these selectors. The setting specified by these selectors becomes effective only when selector 8 of WSW20 is set to "1."

- **Selectors 7 and 8: Tone sound monitoring**

  These selectors set monitoring specifications of the tone sound inputted from the line.

WSW19 (Transmission speed setting)

Selector No.	Function	Setting and Specifications
1 | 3	First transmission speed choice for fallback	No. 1 2 3 No. 4 5 6 0 0 0 : 2,400 bps 0 0 1 : 4,800 bps 0 1 0 : 7,200 bps 0 1 1 : 9,600 bps 1 0 0 : 12,000 bps 1 0 1 : 1 1 0 : 14,400 bps 1 1 1 :
4 | 6	Last transmission speed choice for fallback	
7	V. 34 mode	0: Permitted 1: Prohibited
8	V. 17 mode	0: Permitted 1: Prohibited

- **Selectors 1 through 6: First and last choices of transmission speed for fallback**

  These selectors are used to set the modem speed range. With the first transmission speed choice specified by selectors 1 through 3, the equipment attempts to establish the transmission link via the modem. If the establishment fails, the equipment automatically steps down to the next highest speed and attempts to establish the transmission link again. The equipment repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 4 through 6.

  If the modem always falls back to a low transmission speed (e.g., 4,800 bps), set the first transmission speed choice to the lower one (e.g., modify it from 12,000 bps to 7,200 bps) in order to deactivate the high-speed modem function and reduce the training time for shorter transmission time.

  Generally, to save the transmission time, set the last transmission speed choice to a higher one.

- **Selector 7: V. 34 mode**

  This selector determines whether or not the equipment communicates with the remote station in the V. 34 mode when that station supports the V. 34 mode.

WSW20 (Overseas communications mode setting)

Selector No.	Function	Setting and Specifications
1	EP* tone prefix	0: OFF 1: ON
2	Overseas communications mode (Reception)	0: 2100 Hz 1: 1100 Hz
3	Overseas communications mode (Transmission)	0: OFF 1: Ignores DIS once.
4 5	Min. time length from reception of CFR to start of transmission of video signals	No. 4 5 0 0 : 100 ms 0 1 : 200 ms 1 0 : 300 ms 1 1 : 400 ms
6 7	Chattering noise elimination at detection of CNG	No. 6 7 0 0 : Yes (When CNG goes either ON or OFF) 0 1 : Yes (Only when CNG goes OFF) 1 0 : No 1 1 : No
8	CNG detection on/off	0: OFF 1: ON

* EP: Echo protection

- **Selector 1: EP tone prefix**

  Setting this selector to "1" makes the equipment transmit a 1700 Hz echo protection (EP) tone immediately preceding training in V.29 modulation system to prevent omission of training signals.

  Prefixing an EP tone is effective when the equipment fails to transmit at the V.29 modem speed and always has to fall back to 4800 bps transmission.

- **Selectors 2 and 3: Overseas communications mode**

  These selectors should be used if the facsimile equipment malfunctions in overseas communications. According to the communications error state, select the signal specifications.

  Setting selector 2 to "1" allows the equipment to use 1100 Hz CED signal instead of 2100 Hz in receiving operation. This prevents malfunctions resulting from echoes, since the 1100 Hz signal does not disable the echo suppressor (ES) while the 2100 Hz signal does.

  Setting selector 3 to "1" allows the equipment to ignore a DIS signal sent from the called station once in sending operation. This operation suppresses echoes since the first DIS signal immediately follows a 2100 Hz CED (which disables the ES) so that it is likely to be affected by echoes in the disabled ES state. However, such a disabled ES state will be removed soon so that the second and the following DIS signals are not susceptible to data distortion due to echoes. Note that some models when called may cause error by receiving a self-outputted DIS.

- **Selectors 8: CNG detection on/off**

  If this selector is set to "1," the equipment detects a CNG signal according to the condition preset by selectors 2 and 3 of WSW18 after a line is connected. If it is set to "0," the equipment detects a CNG signal as long as the line is connected.

WSW21 (TAD setting 1)

Selector No.	Function	Setting and Specifications
1 | 7	Not used.	
8	Erasure of message stored in the memory after the message transfer	0: Yes 1: No

- **Selector 8: Erasure of message**

  Setting this selector to "0" will erase the message recorded in the memory after the document retrieval feature transfers the message.

WSW22 (ECM setting)

Selector No.	Function	Setting and Specifications
1	ECM* in sending	0: ON 1: OFF
2	ECM* in receiving	0: ON 1: OFF
3	Call Waiting Caller ID	0: ON 1: OFF
4	Not used.	
5 | 8	Acceptable TCF bit error rate (%) (Only at 4800 bps)	0: 0% 1: 8% 0: 0% 1: 4% 0: 0% 1: 2% 0: 0% 1: 1%

* ECM: Error correction mode

NOTE: Selector 3 is applicable to the American version only, but not applicable to those models equipped with high-speed modem.

NOTE: Selectors 5 through 8 are applicable to the Asian version only.

- **Selector 3: Call Waiting Caller ID**

  Setting this selector to "0" allows the user to decide whether or not to interrupt the current call when a new call comes in. If Call Waiting Caller ID service is available in the area and the user subscribes to it, he/she can see information about his/her incoming call.

- **Selectors 5 through 8: Acceptable TCF bit error rate (%)**

  Setting two or more selectors to "1" produces addition of percent assigned to each selector. If you set selectors 7 and 8 to "1," the acceptable TCF bit error rate will be 3%.

WSW23 (Communications setting)

Selector No.	Function	Setting and Specifications
1	Starting point of training check (TCF)	0: From the head of a series of zeros 1: From any arbitrary point
2 3	Allowable training error rate	No. 2 3 0 0 : 0% 0 1 : 0.5% 1 0 : 1% 1 1 : 2%
4 5	Decoding error rate for transmission of RTN	No. 4 5 0 0 : 16% 0 1 : 14% 1 0 : 10% 1 1 : 8%
6 7	Not used.	
8	Limitation of attenuation level	0: Yes 1: No

NOTE: Selector 8 is not applicable to the French versions.

- **Selector 1: Starting point of training check (TCF)**

  At the training phase of receiving operation, the called station detects for 1.0 second a training check (TCF) command, a series of zeros which is sent from the calling station for 1.5 seconds to verify training and give the first indication of the acceptability of the line.

  This selector sets the starting point from which the called station should start counting those zeros. If this selector is set to "0," the called station starts counting zeros 100 ms after the head of a series of zeros is detected.

  If it is set to "1," the called station starts counting zeros upon detection of 10-ms successive zeros 50 ms after the head of a series of zeros is detected. In this case, if the detection of 10-ms successive zeros is too late, the data counting period will become less than 1.0 second, making the called station judge the line condition unacceptable.

- **Selectors 2 and 3: Allowable training error rate**

  The called station checks a series of zeros gathered in training (as described in Selector 1) according to the allowable training error rate set by these selectors. If the called station judges the line condition to be accepted, it responds with CFR; if not, it responds with FTT.

- **Selectors 4 and 5: Decoding error rate for transmission of RTN**

  The facsimile equipment checks the actual decoding errors and then transmits an RTN according to the decoding error rate (Number of lines containing an error per page ÷ Total number of lines per page) set by these selectors.

- **Selector 8: Limitation of attenuation level**

  Setting this selector to "0" limits the transmitting level of the modem to 10 dB.

  This setting has priority over the settings selected by WSW02 (selectors 5 through 8) and WSW13 (selectors 5 through 8).

WSW24 (TAD setting 2)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3 4	Time length from CML ON to start of pseudo ring backtone transmission	No. 3 4 0 0 : 4 sec. 0 1 : 3 sec. 1 0 : 2 sec. 1 1 : 1 sec.
5 | 8	Attenuator for playback of ICM/ OGM to the line (Selectable from the range of 0-15 dB)	0: 0 dB 1: 8 dB 0: 0 dB 1: 4 dB 0: 0 dB 1: 2 dB 0: 0 dB 1: 1 dB

- **Selectors 3 and 4: Time length from CML ON to start of pseudo ring backtone transmission**

  These selectors set the length of time from CML-ON up to the start of pseudo ring backtone transmission.

  In those versions which have an OGM facility, the settings made by these selectors also apply to the length of time from CML-ON up to the start of OGM transmission.

- **Selectors 5 through 8: Attenuator for playback of ICM/OGM to the line**

  Setting two or more selectors to "1" produces addition of attenuation assigned to each selector.

  This setting will not be limited by selector 8 of WSW23.

WSW25 (TAD setting 3)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 | 7	Pause between paging number and PIN	No. 5 6 7 0 0 0 : 2 sec. 0 0 1 : 4 sec. 0 1 0 : 6 sec. 0 1 1 : 8 sec. 1 0 0 : 10 sec. 1 0 1 : 12 sec. 1 1 0 : 14 sec. 1 1 1 : 16 sec.
8	Not used.	

- **Selectors 5 through 7: Pause between paging number and PIN**

  These selectors set the pause time between a telephone number being paged and PIN (private identification number) for the paging feature.

WSW26 (Function setting 4)

Selector No.	Function	Setting and Specifications
1 2	Not used.	
3	Dialing during document reading into the temporary memory in in-memory message transmission	0: Disabled 1: Enabled
4 5	No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 7	No. of CNG cycles to be detected (when the line is connected via the facsimile equipment in the F/T mode or via the external telephone in the external TAD mode)	No. 4 5 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
8	Not used.	

NOTE: Selectors 6 and 7 take effect only in the V.34 mode.

- **Selector 3: Dialing during document reading into the temporary memory in in-memory message transmission**

  If this selector is set to "0," the equipment waits for document reading into the memory to complete and then starts dialing. This enables the equipment to list the total number of pages in the header of the facsimile message.

- **Selectors 4 and 5: No. of CNG cycles to be detected (when the line is connected via the external telephone except in the external TAD mode)**

  The equipment interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode.

- **Selectors 6 and 7: No. of CNG cycles to be detected (when the line is connected via the facsimile equipment in the F/T mode or via the external telephone in the external TAD mode)**

  The equipment interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the external telephone except in the external TAD mode.

WSW27 (Function setting 5)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Ringer OFF setting	0: Yes 1: No
3	Not used.	
4	Detection of distinctive ringing pattern	0: No 1: Yes
5 | 7	Not used.	
8	Toner save mode	0: Yes 1: No

NOTE: Selector 4 is applicable only to the U.S.A. versions.

- **Selector 2: Ringer OFF setting**

  This selector determines whether or not the ringer can be set to OFF.

WSW28 (Function setting 6)

Selector No.	Function	Setting and Specifications
1 | 3	Transmission level of DTMF high-band frequency signal	No. 1 2 3 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
4 | 6	Transmission level of DTMF low-band frequency signal	No. 4 5 6 0 0 0 : 0 dB 0 0 1 : +1 dB 0 1 0 : +2 dB 0 1 1 : +3 dB 1 0 0 : 0 dB 1 0 1 : -1 dB 1 1 0 : -2 dB 1 1 1 : -3 dB
7 8	Not used.	

- **Selectors 1 through 6: Transmission level of DTMF high-/low-band frequency signal**

  These selectors are intended for the manufacturer who tests the equipment for the Standard. Never access them.

WSW29 (Function setting 7)

Selector No.	Function	Setting and Specifications
1 | 6	Not used.	
7	Impedance switching control in pulse dialing	0: OFF 1: ON
8	Beep when the memory area for the activity report becomes full	0: No 1: Yes

NOTE: Selectors 7 and 8 are applicable to the European version only.

- **Selector 8: Beep when the memory area for the activity report becomes full**

  If this selector is set to "1," the equipment will beep when the memory area for the activity report becomes full (as well as displaying a message on the LCD, prompting the output of the activity report).

WSW30 (Function setting 8)

Selector No.	Function	Setting and Specifications
1 | 3	Not used.	
4	Duty cycle control of pulsed current for the heat-fixing unit	0: OFF 1: ON
5	Drum cleaning prompt settings	0: ON 1: OFF
6 | 8	Not used.	

NOTE: Selector 4 is applicable to the European version only.

- **Selector 4: Duty cycle control of pulsed current for the heat-fixing unit**

  Setting this selector to "1" activates the duty cycle control that suppresses the rush current. The duty cycle is 10-ms ON and 20-ms OFF.

  However, the duty cycle control may emit switching noise to the AC line. Depending upon the codes and regulations in the country, this selector should be set to "0."

- **Selector 5: Drum cleaning prompt settings**

  Setting this selector to "1" (OFF) deactivates all of the drum cleaning prompt settings enabled by selectors 5 to 7 of WSW42.

WSW31 (Function setting 9)

Selector No.	Function	Setting and Specifications
1	Not used.	
2	Default reduction rate for failure of automatic reduction during recording	0: 100% 1: 75% (Letter) 87% (A4) 95% (Legal)
3 4	Not used.	
5	Minimum short-OFF duration in distinctive ringing	0: 130 ms 1: 90 ms
6 7	Not used.	
8	"CHANGE DRUM SOON" message	0: Yes 1: No

- **Selector 2: Default reduction rate for failure of automatic reduction during recording**

  This selector sets the default reduction rate to be applied if the automatic reduction function fails to record one-page data sent from the calling station in a single page of the current recording paper.

  If it is set to "0," the equipment records one-page data at full size (100%) without reduction; if it is set to "1," the equipment records it at the size* specified according to the current paper size.

  (*American versions allow the user to select the desired paper size from the control panel. According to the paper size setting, the equipment determines the reduction rate. Other versions can handle only A4-size paper, so the reduction rate is always 87%.)

- **Selector 5: Minimum short-OFF duration in distinctive ringing**

  The ringer pattern consists of short and long rings, e.g., short-short-long rings. This selector sets the minimum OFF duration following a short ring in order to avoid missing ringer tones in distinctive ringing.

  If this selector is set to "1," when the short-OFF duration is a minimum of 90 ms long, then the equipment will interpret the short-OFF as OFF.

- **Selector 8: "CHANGE DRUM SOON" message**

  This selector determines whether or not the "CHANGE DRUM SOON" message should appear on the LCD when the service life of the laser-sensitive drum in the laser unit will expire soon.

WSW32 (Function setting 10)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 6	Default resolution	No. 5 6 0 0 : Standard 0 1 : Fine 1 0 : Super fine 1 1 : Photo
7 8	Default contrast	No. 7 8 0 X : Automatic 1 0 : Super light 1 1 : Super dark

- **Selectors 5 and 6: Default resolution**

  These selectors set the default resolution which applies when the equipment is powered up or completes a transaction.

- **Selectors 7 and 8: Default contrast**

  These selectors set the default contrast which applies when the equipment is powered up or completes a transaction.

WSW33 (Function setting 11)

Selector No.	Function	Setting and Specifications
1 | 5	Not used.	
6	Report output of polled trans-mission requests	0: Yes 1: No
7 8	Not used.	

NOTE: Selector 6 is not applicable to American versions.

WSW34 (Function setting 12)

Selector No.	Function	Setting and Specifications
1 | 3	Not used.	
4 5	No. of CNG cycles to be detected (when the line is connected via the facsimile equipment or external telephone except in the external TAD mode)	No. 6 7 0 0 : 0.5 (A) 0 1 : 1 (B) 1 0 : 1.5 (C) 1 1 : 2 (D)
6 7	Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation	No. 6 7 0 0 : 3 0 1 : 2 1 0 : 1 1 1 : OFF
8	CNG detection when the external telephone is connected with a line in TAD mode	0: Only when the equipment detects itself being called 1: Always

NOTE: Selectors 4 and 5 are not applicable to the American version.

- **Selectors 4 and 5: No. of CNG cycles to be detected**

  The equipment interprets a CNG as an effective signal if it detects a CNG signal by the number of cycles specified by these selectors when the line is connected via the facsimile equipment or external telephone except in the external TAD mode.

- **Selectors 6 and 7: Number of DTMF tone signals for inhibiting the detection of CNG during external TAD operation**

  If the equipment receives this specified number of DTMF tone signals during external TAD operation, it will not detect CNG afterwards.

  If these selectors are set to "1, 1," the CNG detection will not be inhibited.

- **Selector 8: CNG detection when the external telephone is connected with a line in TAD mode**

  If this selector is set to "0," the equipment will detect a CNG signal only when it detects itself being called. If the external telephone is connected with a line before the equipment detects itself being called, the equipment will no longer detect a CNG signal.

  If this selector is set to "1," the equipment will detect a CNG signal every time the external telephone is connected with a line, even without detecting itself being called.

WSW35 (Function setting 13)

Selector No.	Function	Setting and Specifications
1 | 8	Not used.	

WSW36 (Function setting 14)

Selector No.	Function	Setting and Specifications
1	ECP* mode	0: ON 1: OFF
2	Recovery from inactive PC interface	0: Disabled 1: Enabled
3	PC power-off recognition time	0: Normal 1: Long
4	Not used.	
5	Escape from phase C	0: Yes 1: No
6 | 8	Lower limit of frequency to be ignored after detection of calling signals (Ci)	No. 6 7 8 0 0 0 : 0 (Not ignored) 0 0 1 : 4 (448 Hz) 0 1 0 : 8 (244 Hz) 0 1 1 : 12 (162 Hz) 1 0 0 : 16 (122 Hz) 1 0 1 : 20 (97 Hz) 1 1 0 : 24 (81 Hz) 1 1 1 : 28 (69 Hz)

*ECP (Enhanced Capabilities Port)

- **Selector 1: ECP mode**

  The ECP mode enhances the normal bidirectional communications between the facsimile equipment and the connected PC for higher transmission speed.

- **Selector 2: Recovery from inactive PC interface**

  If the facsimile equipment recognizes via the STB signal line that the connected PC is powered off, it will turn the PC interface outputs Low to protect the PC from hazards that could be caused by weak electric current accidentally flown from the equipment.

  This selector determines whether the equipment should recover from the inactive PC interface to normal interfacing state upon receipt of data from the PC.

- **Selector 3: PC power-off recognition time**

  This selector sets the time length from when the equipment detects the PC powered off until it recognizes the detected state as power-off.

  If selector 2 is set to "0," it is recommended that selector 3 be set to "1": otherwise, the equipment may mistakenly detect PC powered off.

- **Selector 5: Escape from phase C**

  This selector determines whether or not the equipment will escape from phase C when it detects an RTC (Return to Control) in non-ECM mode or an RCP (Return to Control Partial page) in ECM mode.

- **Selectors 6 through 8: Lower limit of frequency to be ignored after detection of calling signals (Ci)**

  At the start of reception, if the equipment detects the frequency of calling signals (Ci) specified by selectors 1 through 4 of WSW14, it will start the ringer sounding. When doing so, the equipment may fail to detect the calling signals normally due to noises superimposed at the time of reception. To prevent it, use selectors 6 through 8 of WSW36.

  If the equipment detects higher frequencies than the lower limit specified by these selectors, it will regard them as noise and interpret that detecting state as being normal, allowing the ringer to keep sounding (until the equipment starts automatic reception of FAX data if in the FAX mode or enters the TAD mode if set in the TEL mode, according to the preset number of ringers).

WSW37 (Function setting 15)

Selector No.	Function	Setting and Specifications
1	Printout of the stored image data of an unsent document onto the error report	0: No 1: Yes
2	Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission	0: No 1: Yes
3 | 8	Not used.	

- **Selector 1: Printout of the stored image data of an unsent document onto an error report**

  This selector determines whether or not the 1st-page image data of a document will be printed out onto the error report if the document image data stored in the temporary memory cannot be transmitted normally.

- **Selector 2: Erasure of the stored image data of an unsent document at the time of the subsequent in-memory message transmission**

  If in-memory message transmission fails repeatedly when selector 1 is set to "1," the temporary memory will be occupied with image data. Setting selector 2 to "1" will automatically erase the stored 1st-page image data of an unsent document at the time of the subsequent in-memory message transmission only when recording paper or toner runs out.

WSW38 (Function setting 16)

Selector No.	Function	Setting and Specifications
1 2	Setting of the equalizer	No. 1 2 0 X Automatic 1 0 : Fixed to 4 points 1 1 : Fixed to 16 points
3	Sending level of guard tone at phase 2	0: Normal - 7 db 1: Normal
4	Stepping down the transmission speed at fallback each	0: 2400 bps 1: 4800 bps
5 6	Automatic control of modem's EQM gain for proper transmission speed choice	No. 5 6 0 0 For higher transmission speed than the current setting 0 1 : No change from the current setting 1 0 : For lower transmission speed than the current setting 1 1 : For further lower transmission than the setting made by 1, 0
7	Redialing when a communications error occurs	0: ON 1: OFF
8	Not used.	

NOTE: WSW38 takes effect only in the V. 34 mode.

- **Selectors 1 and 2: Setting of the equalizer**

  These selectors set the equalizer's training level to be applied if the facsimile equipment fails to send training due to weak line connection. If these selectors are set to "0, X," the modem will automatically set the appropriate training level.

- **Selector 3: Sending level of guard tone at phase 2**

  This selector sets the sending level of guard tone for 1800 Hz to be sent at Phase 2 in the V. 34 mode.

- **Selector 4: Stepping down the transmission speed at fallback each**

  This selector determines how much the modem steps down the transmission speed at fallback when called by the remote station. If this selector is set to "1," the modem may step down the transmission speed from 33600 bps to 28800 bps by one-time fallback.

- **Selectors 5 and 6: Automatic control of modem's EQM gain for proper transmission speed choice**

  These selectors determine how the modem controls the EQM (Eye Quality Monitor) gain for proper choice of the transmission speed, which applies if the modem selects higher transmission speed than the possible speed so that it always repeats falling back.

WSW39 (Function setting 17)

Selector No.	Function	Setting and Specifications
1 | 4	First transmission speed choice for fallback	No. 1 2 3 4 / No. 5 6 7 8 0 0 0 0 : 2400 bps 0 0 0 1 : 4800 bps 0 0 1 0 : 7200 bps 0 0 1 1 : 9600 bps 0 1 0 0 : 12000 bps 0 1 0 1 : 14400 bps 0 1 1 0 : 16800 bps 0 1 1 1 : 19200 bps 1 0 0 0 : 21600 bps 1 0 0 1 : 24000 bps 1 0 1 0 : 26400 bps 1 0 1 1 : 28800 bps 1 1 0 0 : 31200 bps 1 1 0 1 : 33600 bps 1 1 1 0 : 33600 bps 1 1 1 1 : 33600 bps
5 | 8	Last transmission speed choice for fallback	

NOTE: WSW39 takes effect only in the V. 34 mode.

- **Selectors 1 through 8: First and last choices of transmission speed for fallback**

  These selectors are used to set the modem speed range. With the first transmission speed choice specified by selectors 1 through 4, the equipment attempts to establish the transmission link via the modem. If the establishment fails, the equipment automatically steps down to the next highest speed and attempts to establish the transmission link again. The equipment repeats this sequence while stepping down the transmission speed to the last choice specified by selectors 5 through 8.

  If the modem always falls back to a low transmission speed (e.g., 24,000 bps), set the first transmission speed choice to the lower one (e.g., modify it from 31,200 bps to 26,400 bps) in order to deactivate the high-speed modem function and reduce the training time for shorter transmission time.

  WSW39 will be limited by selectors 3 through 8 of WSW40.

WSW40 (Function setting 18)

Selector No.	Function	Setting and Specifications			
1 2	Not used.				
3 | 8	Masking of symbol rate(s)		Not masking	Masking	
		No. 3	0	1	3429 symbols/sec
		No. 4	0	1	3200 symbols/sec
		No. 5	0	1	3000 symbols/sec
		No. 6	0	1	2800 symbols/sec
		No. 7	-	-	Not used.
		No. 8	0	1	2400 symbols/sec

NOTE: WSW40 takes effect only in the V. 34 mode.

- **Selectors 3 and 8: Masking of symbol rate(s)**

  These selectors allow you to limit the transmission speed range in the V. 34 mode by masking the desired symbol rate(s). Transmission speeds assigned to the symbol rates are listed below. The setting made by these selectors will limit the setting made by selectors 1 through 4 of WSW39.

  If selector 3 is set to "1" to mask the 3429 symbols/second when the first transmission speed choice is 33600 bps (specified by selectors 1 through 4 of WSW39), for example, the allowable maximum transmission speed will be limited to 31200 bps. If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 33600 bps, then the allowable maximum transmission speed remains 33600 bps.

  If selector 8 is set to "1" to mask the 2400 symbols/second when the first transmission speed choice is 21600 bps (specified by selectors 1 through 4 of WSW39), the allowable maximum transmission speed remains 21600 bps but the minimum transmission speed will be limited to 4800 bps.

Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)	Symbol rate	Transmission speed (bps)
2400	2400	3000	4800	3429	4800
	4800		7200		7200
	7200		9600		9600
	9600		12000		12000
	12000		14400		14400
	14400		16800		16800
	16800		19200		19200
	19200		21600		21600
	21600		24000		24000
2800	4800		26400		28800
	7200		28800		31200
	9600	3200	4800		33600
	12000		7200		
	14400		9600		
	16800		12000		
	19200		14400		
	21600		16800		
	24000		19200		
	26400		21600		
			24000		
			26400		
			28800		
			31200		

WSW41 (Function setting 19)

Selector No.	Function	Setting and Specifications
1 | 4	Not used.	
5 | 8	Modem attenuator	No. 5 6 7 8 0 0 0 0 : -10 dBm 0 0 0 1 : -11 dBm 0 0 1 0 : -12 dBm 0 0 1 1 : -13 dBm 0 1 0 0 : -14 dBm | | 1 1 1 1 : -25 dBm

NOTE: WSW41 takes effect only in the V. 34 mode.

- **Selectors 5 through 8: Modem attenuator**

  These selectors are used to adjust the transmitting level of the modem when the reception level at the remote station is improper due to line loss. This function applies to super G3 protocol signals.

WSW42 (Function setting 20)

Selector No.	Function	Setting and Specifications
1	Incoming mail server POP*[1]	0: OFF 1: ON
2	Incoming mail server SMTP*[2]	0: OFF 1: ON
3	Internet-FAX forward function	0: OFF 1: ON
4	JBIG*[3] coding system	0: Disabled 1: Enabled
5	Alarm message when the corona wire abnormally emits ions	0: Enabled 1: Disabled
6	Issue of a drum cleaning prompting sheet when the corona wire abnormally emits ions	0: Enabled 1: Disabled
7	Issue of a drum cleaning prompting sheet when the specified number of pages has been printed	0: Enabled 1: Disabled
8	Not used.	

*[1] POP: Post Office Protocol
*[2] SMTP: Simple Mail Transfer Protocol
*[3] JBIG: Joint Bi-level Image Group

NOTE: Selectors 1 through 3 are applicable to those models equipped with LAN interface.

NOTE: Selectors 5 through 7 take effect only when selector 5 of WSW30 is set to "ON" (0).

- **Selector 3: Internet-FAX forward function**

  If this selector is set to "ON," the machine may forward a FAX message received through Internet to other remote G3 facsimile equipment.

- **Selector 5: Alarm message when the corona wire abnormally emits ions**

  This selector determines whether or not the alarm message "PLS CLEAN DRUM" will appear on the LCD when the corona wire abnormally emits ions.

- **Selector 6: Issue of drum cleaning prompting sheet when the corona wire abnormally emits ions**

  This selector determines whether or not a drum cleaning prompting sheet will be printed out when the corona wire abnormally emits ions. The sheet prompts the user to clean the corona wire of the laser-sensitive drum.

- **Selector 7: Issue of a drum cleaning prompting sheet when the specified number of pages has been printed**

  This selector determines whether or not a drum cleaning prompting sheet will be printed out when the specified number of pages has been printed (that is, when it is assumed that the corona wire becomes dirty). The sheet prompts the user to clean the corona wire of the laser-sensitive drum.

WSW43 (Function setting 21)

Selector No.	Function	Setting and Specifications
1	Addition of a header (station ID) to FAX images to be sent to PCs having e-mail addresses	0: Yes 1: No
2 3	Wait time for PCFax reception (Class 2) and FPTS command transmission	No. 2 3 0 0 : 50 ms 0 1 : 100 ms 1 0 : 150 ms 1 1 : 0 ms
4 5	Detection time of 2100 Hz CED or ANSam	No. 4 5 0 0 : 200 ms 0 1 : 300 ms 1 0 : 400 ms 1 1 : 500 ms
6 | 8	Not used.	

NOTE: Selector 1 is applicable to those models equipped with LAN interface.

[B] Printout of firmware switch data

Function

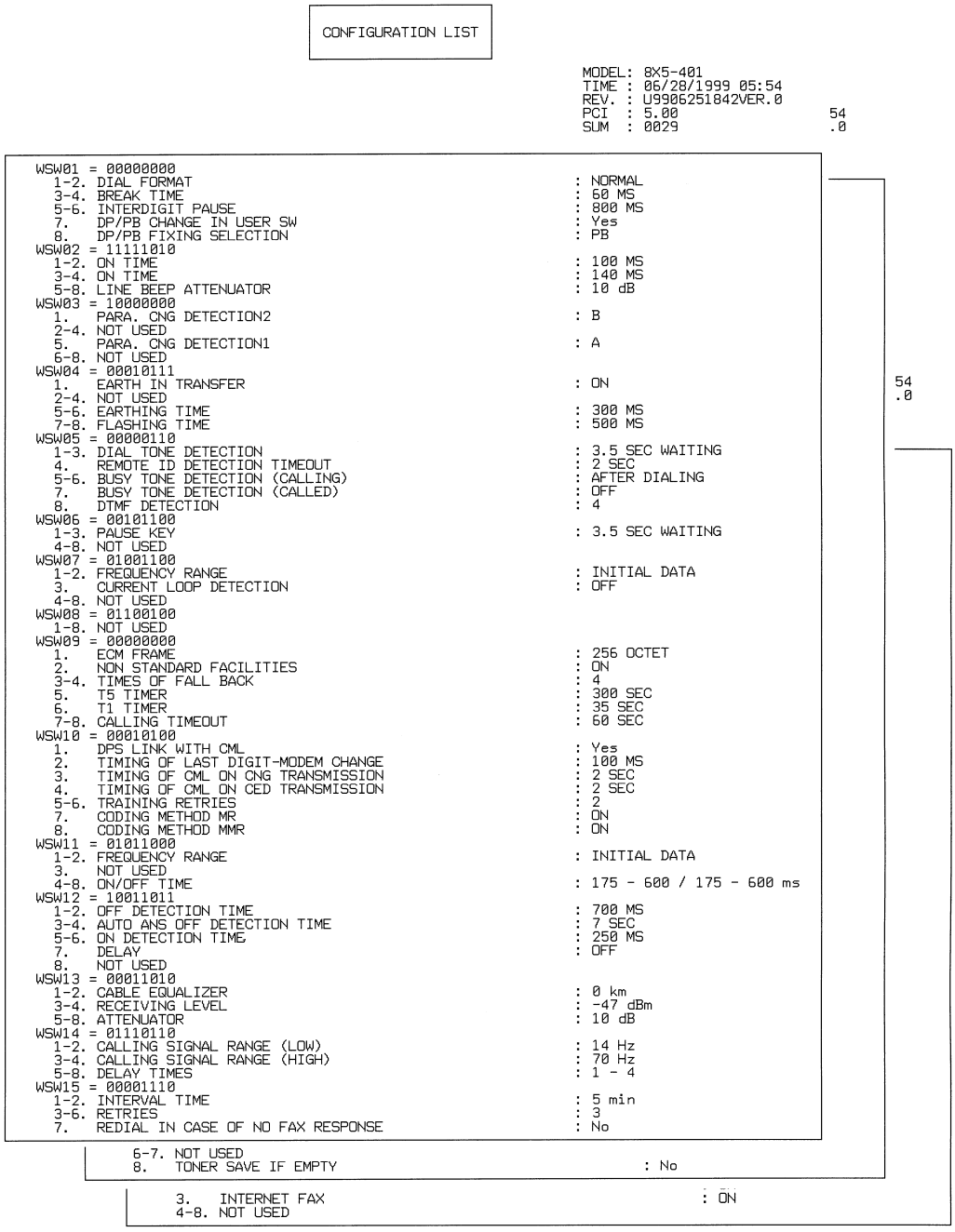
The equipment prints out the setting items and contents specified by the firmware switches.

Operating Procedure

(1) Press the **1** key twice in the initial stage of the maintenance mode.
The "PRINTING" will appear on the LCD.

(2) The equipment prints out the configuration list as shown in the figure below.

(3) Upon completion of printing, the equipment returns to the initial stage of the maintenance mode.


CONFIGURATION LIST
MODEL: 8X5-401
TIME : 06/28/1999 05:54
REV. : U9906251842VER.0
PCI : 5.00 54
SUM : 0029 .0
WSW01 = 00000000
1-2. DIAL FORMAT : NORMAL
3-4. BREAK TIME : 60 MS
5-6. INTERDIGIT PAUSE : 800 MS
7. DP/PB CHANGE IN USER SW : Yes
8. DP/PB FIXING SELECTION : PB
WSW02 = 11111010
1-2. ON TIME : 100 MS
3-4. ON TIME : 140 MS
5-8. LINE BEEP ATTENUATOR : 10 dB
WSW03 = 10000000
1. PARA. CNG DETECTION2 : B
2-4. NOT USED
5. PARA. CNG DETECTION1 : A
6-8. NOT USED
WSW04 = 00010111
1. EARTH IN TRANSFER : ON
2-4. NOT USED
5-6. EARTHING TIME : 300 MS
7-8. FLASHING TIME : 500 MS
WSW05 = 00000110
1-3. DIAL TONE DETECTION : 3.5 SEC WAITING
4. REMOTE ID DETECTION TIMEOUT : 2 SEC
5-6. BUSY TONE DETECTION (CALLING) : AFTER DIALING
7. BUSY TONE DETECTION (CALLED) : OFF
8. DTMF DETECTION : 4
WSW06 = 00101100
1-3. PAUSE KEY : 3.5 SEC WAITING
4-8. NOT USED
WSW07 = 01001100
1-2. FREQUENCY RANGE : INITIAL DATA
3. CURRENT LOOP DETECTION : OFF
4-8. NOT USED
WSW08 = 01100100
1-8. NOT USED
WSW09 = 00000000
1. ECM FRAME : 256 OCTET
2. NON STANDARD FACILITIES : ON
3-4. TIMES OF FALL BACK : 4
5. T5 TIMER : 300 SEC
6. T1 TIMER : 35 SEC
7-8. CALLING TIMEOUT : 60 SEC
WSW10 = 00010100
1. DPS LINK WITH CML : Yes
2. TIMING OF LAST DIGIT-MODEM CHANGE : 100 MS
3. TIMING OF CML ON CNG TRANSMISSION : 2 SEC
4. TIMING OF CML ON CED TRANSMISSION : 2 SEC
5-6. TRAINING RETRIES : 2
7. CODING METHOD MR : ON
8. CODING METHOD MMR : ON
WSW11 = 01011000
1-2. FREQUENCY RANGE : INITIAL DATA
3. NOT USED
4-8. ON/OFF TIME : 175 - 600 / 175 - 600 ms
WSW12 = 10011011
1-2. OFF DETECTION TIME : 700 MS
3-4. AUTO ANS OFF DETECTION TIME : 7 SEC
5-6. ON DETECTION TIME : 250 MS
7. DELAY : OFF
8. NOT USED
WSW13 = 00011010
1-2. CABLE EQUALIZER : 0 km
3-4. RECEIVING LEVEL : -47 dBm
5-8. ATTENUATOR : 10 dB
WSW14 = 01110110
1-2. CALLING SIGNAL RANGE (LOW) : 14 Hz
3-4. CALLING SIGNAL RANGE (HIGH) : 70 Hz
5-8. DELAY TIMES : 1 - 4
WSW15 = 00001110
1-2. INTERVAL TIME : 5 min
3-6. RETRIES : 3
7. REDIAL IN CASE OF NO FAX RESPONSE : No
6-7. NOT USED
8. TONER SAVE IF EMPTY : No
3. INTERNET FAX : ON
4-8. NOT USED
54
.0

Configuration List

3.6 Operational Check of LCD

Function

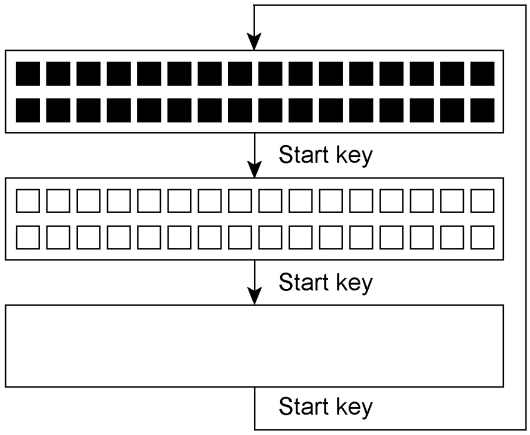
This function allows you to check whether the LCD on the control panel works normally.

Operating Procedure

(1) Press the **1** and **2** keys in this order in the initial stage of the maintenance mode.

The LCD shows

(2) Press the **Start** key. Each time you press the **Start** key, the LCD cycles through the displays shown at right.



(3) Press the **Stop** key in any process of the above display cycle. The equipment beeps for one second and returns to the initial stage of the maintenance mode.

3.7 Operational Check of Control Panel PCB

Function

This function allows you to check the control panel PCB for normal operation.

Operating Procedure

(1) Press the **1** and **3** keys in this order in the initial stage of the maintenance mode.

The "00 " will appear on the LCD.

(2) Press the keys and buttons in the order designated in the illustration shown below.

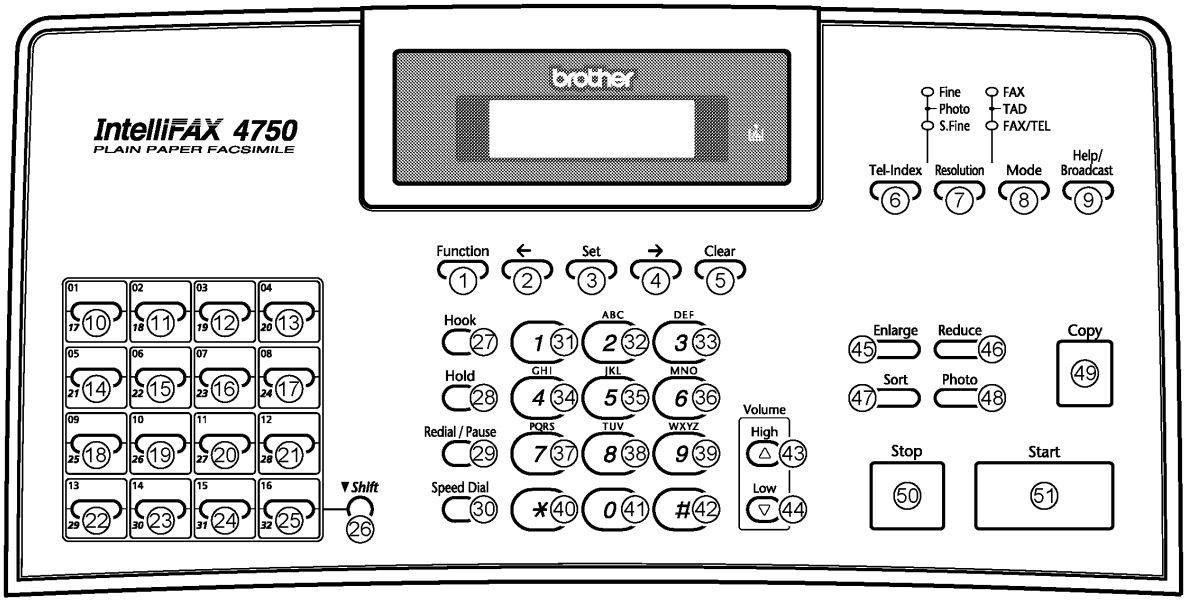
The LCD shows the corresponding number in decimal notation each time a key or button is pressed. Check that the displayed number is correct by referring to the illustration below.

If a key or button is pressed out of order, the equipment beeps and displays the "INVALID OPERATE" on the LCD. To return to the status ready to accept key & button entry for operational check, press the **Stop** key.

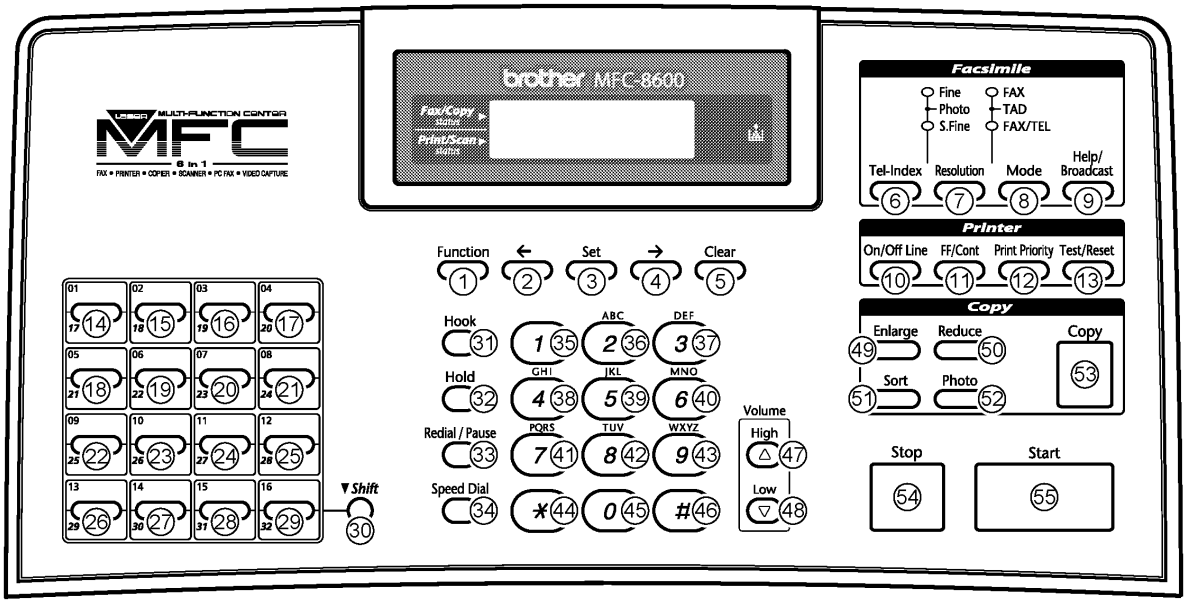
(3) After the last number key or button is pressed, the equipment beeps and returns to the initial stage of the maintenance mode.

To terminate this operation, press the **Stop** key. The equipment returns to the initial stage of the maintenance mode.

FAX4750/FAX5750/FAX8350P



MFC8300/MFC8600/MFC8700/MFC9650/FAX8750P



Key & Button Entry Order

3.8 Receiver Volume Adjustment (applicable to the American version only)

Function

The HIGH level of the handset receiver's volume will be influenced by the characteristics of the FET on the main PCB, so it requires fine adjustment according to the procedure given below.

Operating Procedure

(1) Connect the telephone line cord to the modular jack of the facsimile equipment and the telephone wall socket.

(2) Pick up the handset and listen to the dial tone. If the receiver volume is not appropriate, proceed to the following steps:

(3) Press the **1** and **6** keys in this order in the initial stage of the maintenance mode.

The LCD shows the current receiver volume (default: HIGH).

(4) If the current receiver volume is not HIGH, use the right or left arrow key to choose HIGH.

(5) Press the **Start** key.

The equipment enters the receiver volume adjustment mode and shows the PWM duty ratio at the right end of the LCD.

(6) Adjust the receiver volume by using the **1**, **3**, **4**, or **6** key.

1 key: Decrease 10H
3 key: Increase 10 H
4 key: Decrease 1H
6 key: Increase 1H

(7) To escape from the receiver volume adjustment mode, press the **Set** key.

The LCD shows the "PWM SETTING." One second later, the LCD returns to the screen shown in step (3).

(8) To return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

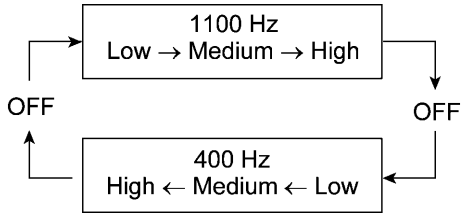
3.9 Sensor Operational Check

Function

This function allows you to check whether the nine sensors (eight sensors on European models)--document front sensor, document rear sensor, cover sensor, registration sensor, toner sensor, paper ejection sensor, hook switch sensor*, manual insertion sensor, and cassette sensor--operate correctly.
(*European models have no hook switch sensor.)

Operating Procedure

(1) Press the **3** and **2** keys in this order in the initial stage of the maintenance mode. The equipment beeps 1100 Hz and 400 Hz tones cyclically through the following volumes for testing the speaker.



NOTE: To stop beeping, press the **Function** key (American models) or **Menu** key (European models).

If the sensing status are as listed below, the LCD will show the following:

"DFDRCVRSTNPOHKR2" and "MNCSC2" (which can be switched by pressing the **Start** key) on American models
"DFDRCVRSTNPO R2" and "MNCSC2" (which can be switched by pressing the **Start** key) on European models

Given below is the relationship between the LCD indication, sensor names and sensor status.

LCD	Sensors	Sensing status
DF	Document front sensor	No document detected.
DR	Document rear sensor	No document detected.
CV	Cover sensor	Front cover closed.
RS	Registration sensor	No paper detected.
TN	Toner sensor	No toner detected.
PO	Paper ejection sensor	No paper jam.
HK	Hook switch sensor*	On-hook state.
R2	2nd registration sensor**	No paper detected.
MN	Manual insertion sensor	No paper detected.
CS	Cassette sensor	No paper cassette loaded.
C2	2nd cassette sensor**	No paper cassette loaded.

(**These error indications will always be displayed in models not equipped with a 2nd paper cassette.)

(2) Change the detecting conditions (e.g., insert paper through the document sensors or the registration sensor(s), open the front cover, remove the toner cartridge, jam paper at the paper outlet, lift up the handset*, insert paper manually through the paper slot, and load the paper cassette(s)), and then check that the indication on the LCD changes according to the sensor states.

(3) To stop this operation and return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

NOTE: If you have opened and closed the front cover during the above procedure, you need to open and close the front cover again upon completion of the procedure.

3.10 CIS Scanner Area Setting

Function

The equipment sets the CIS scanner area and stores it into the EEPROM.

Operating Procedure

(1) Press the **5** key twice in the initial stage of the maintenance mode.

The "SCANNER AREA SET" will appear on the LCD.

The equipment checks and sets the area to be scanned.

If no error is noted, the equipment returns to the initial stage of the maintenance mode.

If any error is noted, the "SCANNER ERROR" will appear on the LCD. To return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.11 EEPROM Customizing

Function

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings. The customizing codes list is given in Appendix 1.

NOTE: If you replace the main PCB, be sure to carry out this procedure.

Operating Procedure

(1) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

The current customizing code (e.g., 1101 in the case of MFC8300 USA version) appears.

(2) Enter the desired customizing code (e.g., 0202 in the case of MFC8600 Canadian version).

The newly entered code appears.

NOTE: *If a wrong 4-digit code is entered, the equipment will malfunction.*

(3) Press the **Start** key.

The equipment saves the setting and returns to the initial stage of the maintenance mode.

If you press the **Stop** key or no keys are pressed for one minute in the above procedure, the equipment stops the procedure and returns to the initial stage of the maintenance mode.

3.12 Erasure of Received FAX Messages Temporarily Stored in the Flash Memory (not applicable to the American version)

Function

This function erases received FAX messages which are temporarily stored in the flash memory so that they will not be lost by powering off the equipment. This function also erases activity report data stored in the flash memory.

Operating Procedure

(1) Press the **7** and **9** keys in this order in the initial stage of the maintenance mode.

The equipment shows the "BACKUP CLEAR" on the LCD and erases received FAX messages temporarily stored in the flash memory.

Upon completion of erasure, the equipment will automatically return to the initial stage of the maintenance mode.

3.13 Equipment Error Code Indication

Function

This function displays an error code of the last error on the LCD.

Operating Procedure

(1) Press the **8** and **2** keys in this order in the initial stage of the maintenance mode.

The LCD shows the "MACHINE ERROR X X."

(2) To stop this operation and return the equipment to the initial stage of the maintenance mode, press the **Stop** key.

3.14 Output of Transmission Log to the Telephone Line

Function

This function outputs the transmission log (that the equipment has stored about the latest transmission) to the telephone line. It allows the service personnel to receive the transmission log of the user's equipment at a remote location and use it for analyzing problems arising in the user's equipment.

Operating Procedure

(1) If the user's equipment has a transmission-related problem, call the user's equipment at a remote location from your equipment.

(2) If the line is connected, have the user perform the following:

1) American models: Press the **Function**, **Mode**, and **0** keys in this order.

European models: Press the **Menu**, **Mode**, and **0** keys in this order.

2) Press the **8** and **7** keys.

The above operation makes the user's equipment send CNG to your equipment for sending the transmission log.

(3) If you hear the CNG sent from the user's equipment, press the **Start** key of your equipment.

Your equipment will start to receive the transmission log from the user's equipment.

3.15 Cancellation of the Memory Security Mode (applicable to the European version only)

Function

This procedure can cancel the memory security mode. Use this procedure if the user forgets his/her password entered when setting the memory security mode so as not to exit from the memory security mode.

NOTE: Carrying out this procedure will lose passwords previously entered but retain FAX messages received in the memory security mode.

Operating Procedure

(1) When the SECURE MODE is displayed on the LCD, hold down the **Menu** key and press the # key. Within two seconds, start to press the **2**, **7**, **9**, **0**, and **0** keys.

The memory security mode will be canceled and the equipment returns to the calendar clock screen.

CHAPTER VI.

ERROR INDICATION AND TROUBLESHOOTING

CHAPTER VI. ERROR INDICATION AND TROUBLESHOOTING

CONTENTS

1. ERROR INDICATION VI-1

1.1 Equipment Errors VI-1

[1] Error messages on the LCD VI-1

[2] Error codes shown in the "MACHINE ERROR X X" message VI-4

1.2 Communications Errors VI-6

2. TROUBLESHOOTING VI-16

2.1 Introduction VI-16

2.2 Precautions VI-16

2.3 Checking prior to Troubleshooting VI-16

2.4 Troubleshooting Procedures VI-18

[1] Control panel related VI-18

[2] Telephone related VI-18

[3] Communications related VI-19

[4] Paper/document feeding related VI-19

[5] Print-image related VI-20

Location of High-voltage Contacts and Grounding Contacts VI-27

1. ERROR INDICATION

To help the user or the service personnel promptly locate the cause of a problem (if any), the facsimile equipment incorporates the self-diagnostic functions which display error messages for equipment errors and communications errors.

For the communications errors, the equipment also prints out the transmission verification report and the communications list.

1.1 Equipment Errors

If an equipment error occurs, the facsimile equipment emits an audible alarm (continuous beeping) for approximately 4 seconds and shows the error message on the LCD. For the error messages, see [1] below.

To display detailed error information, use the maintenance-mode function code 82 described in Chapter V, Section 3.13 (that is, make the equipment enter the maintenance mode and then press the **8** and **2** keys). Following the MACHINE ERROR, one of the error codes listed in [2] will appear on the LCD.

[1] Error messages on the LCD

Messages on the LCD	Probable Cause
CHECK PAPER CHECK PAPER#1 CHECK PAPER#2	Even after paper pick-up operation, the manual insertion sensor does not detect paper. (For those models available with a 2nd paper cassette, the "CHECK PAPER#1" or "CHECK PAPER#2" will appear if the manual insertion sensor or 2nd registration sensor does not detect paper, respectively. If both sensors detect no paper, the "CHECK PAPER" will appear.)
CHECK CASSETTE CHECK CASSETTE#1 CHECK CASSETTE#2	The cassette sensor detects that no paper cassette is loaded. (For those models available with a 2nd paper cassette, the "CHECK CASSETTE#1" or "CHECK CASSETTE#2" will appear if the cassette sensor or the 2nd cassette sensor does not detect paper cassette, respectively. If both sensors detect no cassette, the "CHECK CASSETTE" will appear.)
COVER OPEN	The cover sensor detects that the front cover is not closed.
PRINTER JAM	(1) The paper ejection sensor stays OFF even after the registration sensor has gone OFF and the paper has been fed by the specified amount. (2) The paper ejection sensor stays ON even after it has came ON and the paper has been fed by the specified amount.

Messages on the LCD	Probable Cause
DOCUMENT JAM	Document jam (1) The document length exceeds the limitation (400 or 90 cm) registered by firmware switch WSW16. (Refer to Chapter V, Section 3.5.) (Both the document front and rear sensors stay ON after the document has been fed by the registered length.) (2) The document rear sensor detects no trailing edge of a document after the document has been fed by 400 cm. (The document rear sensor stays ON even after the document has been fed when the document front and rear sensors were OFF and ON, respectively.)
	Document loading error (1) The document rear sensor detects no leading edge of a document within 10 seconds from the start of document loading operation. (The document rear sensor stays OFF even after the document has been fed when the document front sensor was ON.) (2) The loaded document is too short. (Since the document is shorter than the distance between the document front and rear sensors, the document front sensor is turned OFF before the document rear sensor is turned ON.)
CLEAN UP SCANNER	In the scanning compensation data list printed by the maintenance-mode function code 05, less than fifty percent of the white level data is faulty. (This message may appear only in the maintenance mode.)
SCANNER ERROR	In the scanning compensation data list printed by the maintenance-mode function code 05, fifty percent or more of the white level data is faulty. (This message may appear only in the maintenance mode.)
TONER LOW	The toner sensor has detected that there is not enough toner.
TONER EMPTY	The toner sensor has detected that there is no toner in the cartridge or that no toner cartridge is loaded. If this message appears, recording is no longer possible.
COOLING DOWN	The controller, which monitors the internal resistance of the in-casing temperature sensor (thermistor) and heater thermistor, has detected that the temperature inside the equipment or the heater temperature exceeded the specified level. If either temperature exceeds the preset level, recording is no longer possible.

Messages on the LCD	Probable Cause
MACHINE ERROR XX	"XX" indicates an error code. Refer to [2] on pages VI-4 and VI-5.
CHANGE DRUM SOON	The service life of the drum unit will expire soon. This message appears for one minute. (You can turn this message indication on or off by the maintenance-mode function code 10, WSW31, selector 8. Refer to Chapter V, Section 3.5.)
PLS OPEN COVER	To display the relating detailed error code, use maintenance-mode function code 82. (Refer to Chapter V, Section 3.13.) If this message appears, open and close the front cover. The message may disappear if opening/closing the front cover removes the error. If the error persists, the "MACHINE ERROR XX" will appear.

If only an alarm beep is heard without any message on the LCD when the equipment is powered up, the ROM or RAM will be defective.

[2] Error codes shown in the "MACHINE ERROR X X " message

Error Code X X (Hex.)	Error factor
(71	Polygon motor does not synchronize with the reference clock.)
(72	Cannot detect Beam Detect signal.)
(73	No toner cartridge loaded.)
(74	Toner empty.)
(75	In-casing temperature error.)
(76	Heater harness disconnected or broken.)
(77	Heater thermistor short circuit.)
(78	Heater thermistor harness disconnected or broken.)
(79	In-casing temperature sensor harness disconnected or broken.)
(7A	Main motor does not synchronize with the reference clock.)
(7B	ASIC error on the main PCB.)
(7C	Engine PCB error.)
(80	Paper size setting error.)
(82	Paper feeding error.)
(83	Paper jam. The registration sensor, 2nd registration sensor, and/or manual insertion sensor remains ON.)
(84	Paper jam. The paper ejection sensor remains ON.)
(85	No paper cassette loaded.)
(86	No 2nd paper cassette loaded.)
(88	Paper jam. Even after the registration sensor has gone OFF, the paper ejection sensor still stays OFF.)
(A1	Front cover opened.)
(A2	Document too long to scan.)
(A3	Document not detected by the document rear sensor.)
(A4	50% or more faulty of white level data.)
(A7	One-line feeding timeout error.)
(A8	One-line scanning timeout error.)
(A9	Abnormal scanning reference voltage.)
(AC	Less than 50% faulty of white level data.)

Error codes in parentheses do not appear in the "MACHINE ERROR X X", since those errors are displayed as messages described in "[1] Error messages on the LCD." In the maintenance mode (Function code 82), those error codes may be displayed.

Error Code X X (Hex.)	Error factor
(B7	A/D converter reference voltage error (at High level).)
(B8	A/D converter reference voltage error (at Low level).)
(B9	Light emission intensity error of the LED array.)
(BA	Magnification error for substantial white level data.)
(BB	Substantial white level data error in black & white mode.)
(BC	Substantial white level data error in photo mode.)
(BD	Black level data error.)
(D5	The MODEM fails to complete the command transmission sequence.)
(E4	Out of recording paper.)
E6	Write error in EEPROM.
(E8	Data scanning error during transmission.)
(EA	Document removed in phase B.)
(F5	EOL not found in page memory transmission mode.)
(F6	PC interface error.)

Error codes in parentheses do not appear in the "MACHINE ERROR X X", since those errors are displayed as messages described in "[1] Error messages on the LCD." In the maintenance mode (Function code 82), those error codes may be displayed.

1.2 Communications Errors

If a communications error occurs, the facsimile equipment

① emits an audible alarm (intermittent beeping) for approximately 4 seconds,

② displays the corresponding error message, and

③ prints out the transmission verification report if the equipment is in sending operation.

Definition of Error Codes on the Communications List

(1) Calling

Code 1	Code 2	Causes
10	08	Wrong number called.
10	20	Retrieval file error.
10	21	Image data entry error.
11	01	No dial tone detected before start of dialing.
11	02	Busy tone detected before dialing.
11	03	2nd dial tone not detected.
11	05	No loop current detected.*
11	06	Busy tone detected after dialing or called.
11	07	No response from the remote station in sending.
11	10	No tone detected after dialing.
17	07	No response from the calling station in receiving.
1A	01	Calling impossible due to memory full.

*Available in German versions only.

(2) Command reception

Code 1	Code 2	Causes
20	01	Unable to detect a flag field.
20	02	Carrier was OFF for 200 ms or longer.
20	03	Abort detected ("1" in succession for 7 bits or more).
20	04	Overrun detected.
20	05	A frame for 3 seconds or more received.
20	06	CRC error in answerback.
20	07	Undefined command received.
20	08	Invalid command received.
20	09	Command ignored once for document setting or for dumping-out at turn-around transmission.
20	0A	T5 timeout error
20	0B	CRP received.

Code 1	Code 2	Causes
20	0C	EOR and NULL received.
20	0D	Effective command not received.
20	10	Unable to reserve a command receiver memory.
20	11	Image data file error.

(3) Compatibility [checking the NSF and DIS]

Code 1	Code 2	Causes
32	01	Remote terminal only with V.29 capability in 2400 or 4800 bps transmission.
32	02	Remote terminal not ready for polling.
32	10	Remote terminal not equipped with password function or its password switch OFF.
32	11	Remote terminal not equipped with or not ready for confidential mail box function.
32	12	Remote terminal not equipped with or not ready for relay broadcasting function.
32	13	No confidential mail in the remote terminal.
32	14	The available memory space of the remote terminal is less than that required for reception of the confidential or relay broadcasting instruction.

(4) Instructions received from the remote terminal [checking the NSC, DTC, NSS, and DCS]

Code 1	Code 2	Causes
40	02	Illegal coding system requested.
40	03	Illegal recording width requested.
40	05	ECM requested although not allowed.
40	06	Polled while not ready.
40	07	No document to send when polled.
40	10	Nation code or manufacturer code not coincident.
40	11	Unregistered group code entered for relay broadcasting function, or the specified number of broadcasting subscribers exceeding the limit.
40	12	Retrieval attempted when not ready for retrieval.
40	13	Polled by any other manufacturers' terminal while waiting for secure polling.
40	17	Invalid resolution selected.

(5) Command reception [checking the NSF and DIS after transmission of NSS and DCS]

Code 1	Code 2	Causes
50	01	Vertical resolution capability changed after compensation of background color.

(6) ID checking

Code 1	Code 2	Causes
63	01	Password plus "lower 4 digits of telephone number" not coincident.
63	02	Password not coincident.
63	03	Polling ID not coincident.
63	04	Entered confidential mail box ID uncoincident with the mail box ID.
63	05	Relay broadcasting ID not coincident.
63	06	Entered retrieval ID uncoincident with that of the mail box ID.

(7) DCN reception

Code 1	Code 2	Causes
74		DCN received.

(8) TCF transmission/reception

Code 1	Code 2	Causes
80	01	Fallback impossible.

(9) Signal isolation

Code 1	Code 2	Causes
90	01	Unable to detect video signals and commands within 6 seconds after CFR is transmitted.
90	02	Received PPS containing invalid page count or block count.

(10) Video signal reception

Code 1	Code 2	Causes
A0	03	Error correction sequence not terminated even at the final transmission speed for fallback.
A0	11	Receive buffer empty. (5-second time-out)
A0	12	Receive buffer full during operation except receiving into memory.
A0	13	Decoding error continued on 500 lines.
A0	14	Decoding error continued for 10 seconds.
A0	15	Timeout: Five seconds or more for one-line transmission.
A0	16	RTC not found and carrier OFF signal detected for 6 seconds.
A0	17	RTC found but no command detected for 60 seconds.
A0	18	Receive buffer full during receiving into memory.
A0	19	Unable to obtain compressed image data to be sent in phase C.
A8	01	RTN, PIN, or ERR received at the calling terminal.*
A9	01	RTN, PIN, or ERR received at the called terminal.*

* Available in German versions only

(11) General communications-related

Code 1	Code 2	Causes
B0	02	Unable to receive the next-page data.
B0	03	Unable to receive polling even during turn-around transmission due to call reservation.
B0	04	PC interface error.
BF	01	Transmission canceled by pressing the **Stop** key (before completion of the G3 FAX negotiation).
BF	02	Transmission canceled by pressing the **Stop** key (after completion of the G3 FAX negotiation).
BF	03	Transmission canceled due to a scanning error.

(12) Transmission in V. 34 mode

Code 1	Code 2	Causes
C0	01	No common modulation mode or failed to poll.
C0	02	Unable to detect JM.
C0	03	Unable to detect CM.
C0	04	Unable to detect CJ.
C0	10	Cannot finish V. 34 negotiation or training.
C0	11	Modem error detected during V. 34 negotiation or training. (For modem error details, refer to the table below.)
C0	20	Modem error detected during sending of commands. (For modem error details, refer to the table below.)
C0	21	Modem error detected during receiving of commands. (For modem error details, refer to the table below.)
C0	22	Control channel connection time-out.
C0	30	Modem error detected during sending of video signals. (For modem error details, refer to the table below.)
C0	31	Modem error detected during receiving of video signals. (For modem error details, refer to the table below.)

Modem error details (Code 3)

Code 3	Causes
21	Timeout waiting for INFO0.
22	Checksum error in INFO0.
23	Timeout waiting for tone A or B.
24	Timeout waiting for first phase reverse.
25	Timeout waiting for probing cut-off tone.
26	Timeout waiting for second phase reverse.
27	Timeout waiting for end of probing.
28	Timeout waiting for third phase reverse.
29	Timeout waiting for INFO1.
2A	Checksum error in INFO1.
2B	Tone detected preceding INFO0.
2C	Unexpected INFO0 detected.
31	Timeout waiting for turning off the receive control channel.
91	Error occurred in the first CC train.
92	Timeout waiting for PPh.
93	Tone A/B detected in the CC retrain.
94	Timeout waiting for ALT.
95	ACh found.
96	FED turned off during reception of CC data.
97	Timeout waiting for turning off the CC.
A1	Retraining forced for problems not fixed in phase 2.
B0	Problem with S-sequence of HDX-resync.
B1	FED turned off in the S-sequence of HDX-resync.
B2	S-sequence finished before prediction in HDX-resync.
B3	Timeout waiting for S-Sbar in HDX-resync.
B4	Timeout waiting for S-Sbar in HDX-resync.
B5	Timeout waiting for S in HDX-resync.
B6	Timeout waiting for synchronization with PP.
C0	Problem with S-sequence in phase 3.
C1	FED turned off in the S-sequence in phase 3.

Code 3	Causes
C2	S-sequence finished before prediction in phase 3.
C3	Timeout waiting for S-Sbar in phase 3.
C4	Timeout waiting for S-Sbar in phase 3.
C5	Timeout waiting for S in phase 3.
C7	Training after TRN failure.
D0	Problem with S-sequence in phase 4.
D1	FED turned off in S-sequence in phase 4.
D2	S-sequence finished before prediction in phase 4.
D3	Timeout waiting for S-Sbar in phase 4.
D4	Timeout waiting for S-Sbar in phase 4.
D5	Timeout waiting for S in phase 4.
D6	Timeout waiting for MP.
D8	Timeout waiting for E.
DA	Timed out in re-negotiation of the transmitter rate.
DB	Timed out in the transmitter MPh.
E2	Retraining detected in phase 2.
E3	Retraining detected in phase 3.
E4	Retraining detected in phase 4.
FE	DTR turned off during retraining.
FF	Tx set-abort flag.
71	Did not write onto the first mapping frame.

(13) Maintenance mode

Code 1	Code 2	Causes
E0	01	Failed to detect 1300 Hz signal in burn-in operation.
E0	02	Failed to detect PB signals in burn-in operation.
E0	03	Failed to detect commands from the RS-232C in burn-in operation.

(14) Equipment error

Code 1	Code 2	Causes
FF	00	Burn-in operation canceled by pressing the **Stop** key.
FF	FF	Unrecoverable MODEM error.

2. TROUBLESHOOTING

2.1 Introduction

This section gives the service personnel some of the troubleshooting procedures to be followed if an error or malfunction occurs with the facsimile equipment. It is impossible to anticipate all of the possible problems which may occur in future and determine the troubleshooting procedures, so this section covers some sample problems. However, those samples will help service personnel pinpoint and repair other defective elements if he/she analyzes and examines them well.

2.2 Precautions

Be sure to observe the following to prevent the secondary troubles from happening:

(1) Always unplug the AC power cord from the outlet when removing the covers and PCBs, adjusting the mechanisms, or conducting continuity testing with a circuit tester.

(2) When disconnecting the connectors, do not pull the lead wires but hold the connector housings.

(3)
- Before handling the PCBs, touch a metal portion of the machine to discharge static electricity charged in your body.
- When repairing the PCBs, handle them with extra care.

After repairing the defective section, be sure to check again if the repaired section works correctly. Also record the troubleshooting procedure so that it would be of use for future trouble occurrence.

2.3 Checking prior to Troubleshooting

Prior to proceeding to the troubleshooting procedures given in Subsection 2.4, make the following initial checks:

Environmental conditions

Check that:

(1) The machine is placed on a flat, firm surface.

(2) The machine is used in a clean environment at or near normal room temperature (10°C to 32.5°C) with normal relative humidity (20 to 80%).

(3) The machine is not subjected to rapid change of the ambient temperature. (Moving the machine from a cold place to warm place will cause condensation inside the machine. If it takes place, leave the machine in the warm place for approx. two hours before turning on the power.) Powering on the machine with dew condensation will result in damaged electronic devices.

(4) The machine is not exposed to direct sunlight or harmful gases.

Power requirements

Check that:

(1) The power supply specified on the rating plate located on the bottom of the machine is used. The supply voltage stays within the rating ±10%.

(2) Each voltage level on AC input lines and DC lines is correct.

(3) All cables and harnesses are firmly connected.

(4) None of the fuses are blown.

Recording paper

Check that:

(1) A recommended type of recording paper is used.

(2) The recording paper is not dampened.

2.4 Troubleshooting Procedures

[1] Control panel related

Trouble	Check:
(1) LCD shows nothing.	• Panel-main harness between the main PCB and the control panel PCB • Control panel PCB • Low-voltage power supply PCB • Main PCB • LCD
(2) Control panel inoperative.	• Panel-main harness between the main PCB and the control panel PCB • Control panel PCB • FPC key • Main PCB

[2] Telephone related

Trouble	Check:
(1) No phone call can be made.	• FPC key • Control panel PCB • NCU PCB • Main PCB
(2) Speed dialing or one-touch dialing will not work.	• Ordinary dialing function (other than the speed and one-touch dialing) If it works normally, check the main PCB; if not, refer to item (1) above.
(3) Speaker silent during on-hook dialing.	• Ordinary dialing function (other than the on-hook dialing with the hook key) If it works normally, proceed to the following checks; if not, refer to item (1) above.
(4) Dial does not switch between tone and pulse.	• Main PCB
(5) Telephone does not ring.	• Speaker • NCU PCB • Main PCB

[3] Communications related

Trouble	Check:
(1) No tone is transmitted.	• Main PCB • NCU PCB

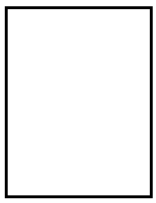
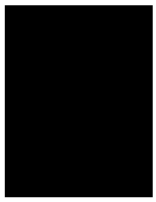
[4] Paper/document feeding related

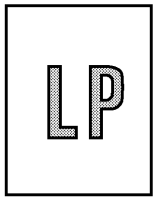
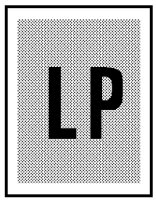
Trouble	Check:
(1) Neither "COPY: PRESS COPY" nor "FAX: NO. & START" message appears although documents are set.	• Sensors by using the maintenance-mode function code 32. (Refer to Chapter V, Subsection 3.9.) • Document front sensor actuator and document rear sensor actuator • Main PCB
(2) Document not fed.	• ADF and its related sections • Scanner motor and its harness • Document feed roller and its related gears • Main PCB
(3) Document double feeding	• ADF parts • Nip-related parts
(4) Recording paper not fed.	• Paper loaded in the paper cassette(s) • Paper cassette(s) • Drum unit • Heat-fixing unit • Drive gear ASSY • Engine PCB • Main PCB
(5) Recording paper double feeding	• Separation pad on the paper cassette(s)

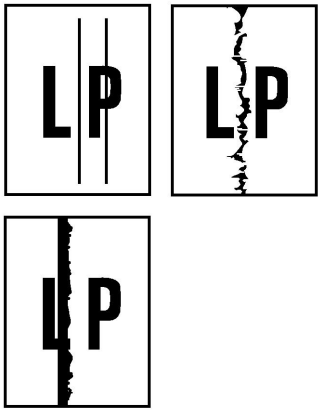
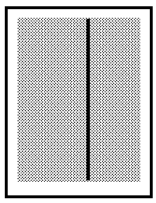
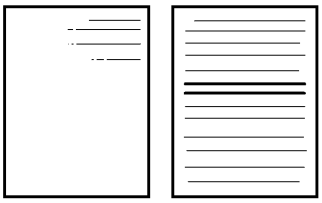
[5] Print-image related

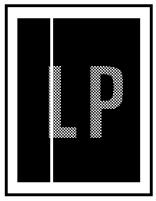
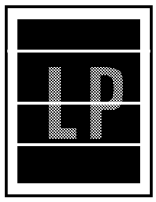
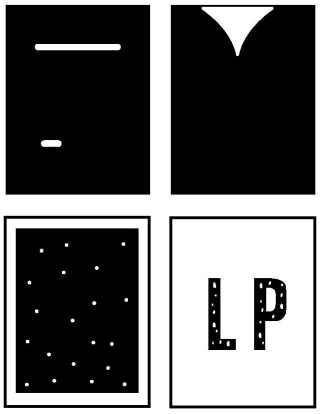
If the received or sent image has any problem, first make a copy with the facsimile equipment.

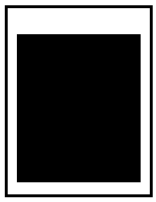
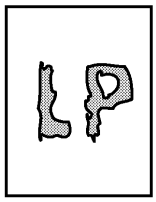
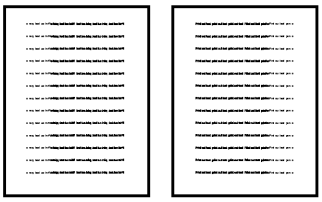
If the copied image is normal, the problem may be due to the remote terminal; if it is abnormal, proceed to the following checks:

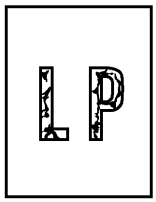
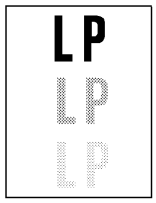
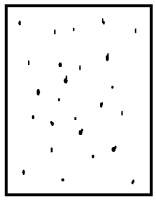
Trouble	Action to be taken
(1) Completely blank 	<u>At the scanner</u> Check the following components: - CIS harness - Main PCB - CIS unit <u>At the printer side</u> ● Clean the high-voltage contacts for the developer roller on the drum unit, main cover, and high-voltage power supply PCB. (Contacts in the illustration given on page VI-27) ● Clean the grounding contacts on the drum unit, main cover, and high-voltage power supply PCB. (Contacts in the illustration given on page VI-27) ● Replace the toner cartridge. ● Replace the drum unit. ● Check the connection of the laser flat cable on the main PCB. ● Replace the main PCB. ● Replace the laser unit. ● Replace the high-voltage power supply PCB.
(2) All black 	<u>At the scanner</u> Check the following components: - CIS harness - CIS unit - Main PCB <u>At the printer side</u> ● Clean the high-voltage contacts for the grid and charger on the drum unit, main cover, and high-voltage power supply PCB. (Contacts and in the illustration given on page VI-27) ● Clean the charger (corona wires) itself. ● Check the connection of the laser flat cable on the main PCB. ● Replace the drum unit. ● Replace the high-voltage power supply PCB. ● Replace the main PCB.

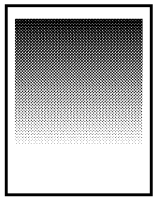
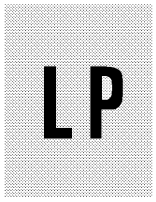
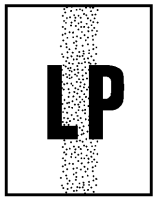
Trouble	Action to be taken
(3) Light  	At the scanner Check the following components: - CIS unit - Main PCB At the printer side • Replace the toner cartridge with a new one and print 4 to 5 pages. If the problem persists, proceed to the next step. • Remove the toner cartridge and start printing. If printing takes place, clean the toner sensors (LED and light-receiver), check the sensor harnesses, and then replace the toner sensor PCBs. • Clean the high-voltage contacts for the transfer roller on the drum unit, main cover, and high-voltage power supply PCB. (Contacts in the illustration given on page VI-27) • Clean the high-voltage contacts for the developer roller on the drum unit, main cover, and high-voltage power supply PCB. (Contacts in the illustration given on page VI-27) • Clean the grounding contacts on the drum unit and main cover. (Contacts in the illustration given on page VI-27) • Check the connection of the main PCB and high-voltage power supply PCB. • Replace the drum unit. • Replace the high-voltage power supply PCB. • Replace the engine PCB. • Replace the main PCB. • Replace the laser unit.
(4) Dark  	At the scanner Check the following components: - CIS unit - Main PCB At the printer side • Slide the wire cleaner to clean the corona wire inside the drum unit. • Clean the high-voltage contacts for the grid and charger on the drum unit, main cover, and high-voltage power supply PCB. (Contacts and in the illustration given on page VI-27) • Replace the toner cartridge. • Replace the drum unit. • Replace the high-voltage power supply PCB. • Replace the main PCB. • Replace the engine PCB.

Trouble	Action to be taken
(5) Black and blurred vertical stripes or band 	At the scanner Check the following components: - CIS unit At the printer side • Clean the paper path which may be contaminated with toner. • Slide the wire cleaner to clean the corona wire inside the drum unit. • Make sure that the wire cleaner is returned to its home position. • Replace the toner cartridge. • Replace the drum unit. • Replace the heat-fixing unit.
(6) Black vertical streaks on gray background 	At the printer side • Clean the laser beam window (glass) on the laser unit. • Replace the laser unit.
(7) Black and blurred horizontal stripes 	At the printer side • Slide the wire cleaner to clean the corona wire inside the drum unit. • If the horizontal stripes appear at 39-mm intervals, replace the toner cartridge. • If they appear at 94-mm intervals, replace the drum unit. • If they appear at 79-mm intervals, replace the heat-fixing unit. • Clean the grounding contacts. (Contacts in the illustration given on page VI-27.) • Replace the high-voltage power supply PCB.
(8) Horizontal lines 	At the printer side • Check the connection between the right end of the paper feed roller and the grounding wire. (Contact in the illustration given on page VI-28.)

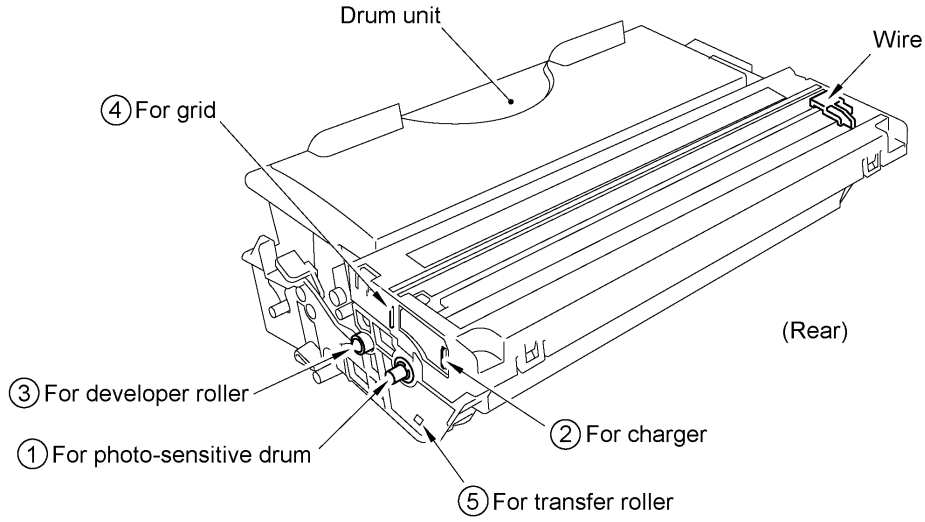
Trouble	Action to be taken
(9) White vertical streaks  	<u>At the scanner</u> Check the following components: - CIS unit <u>At the printer side</u> ● Clean the laser beam window on the laser unit. ● Replace the toner cartridge. ● Replace the drum unit.
(10) White horizontal stripes  	<u>At the printer side</u> ● Replace the drum unit.
(11) Dropout, white spots, or hollow print  	<u>At the printer side</u> ● Check the connection of the main PCB and high-voltage power supply PCB. ● Replace the toner cartridge. ● Gently wipe off the surface of the photo-sensitive drum with a cotton swab. ● Replace the drum unit. ● Replace the high-voltage power supply PCB.

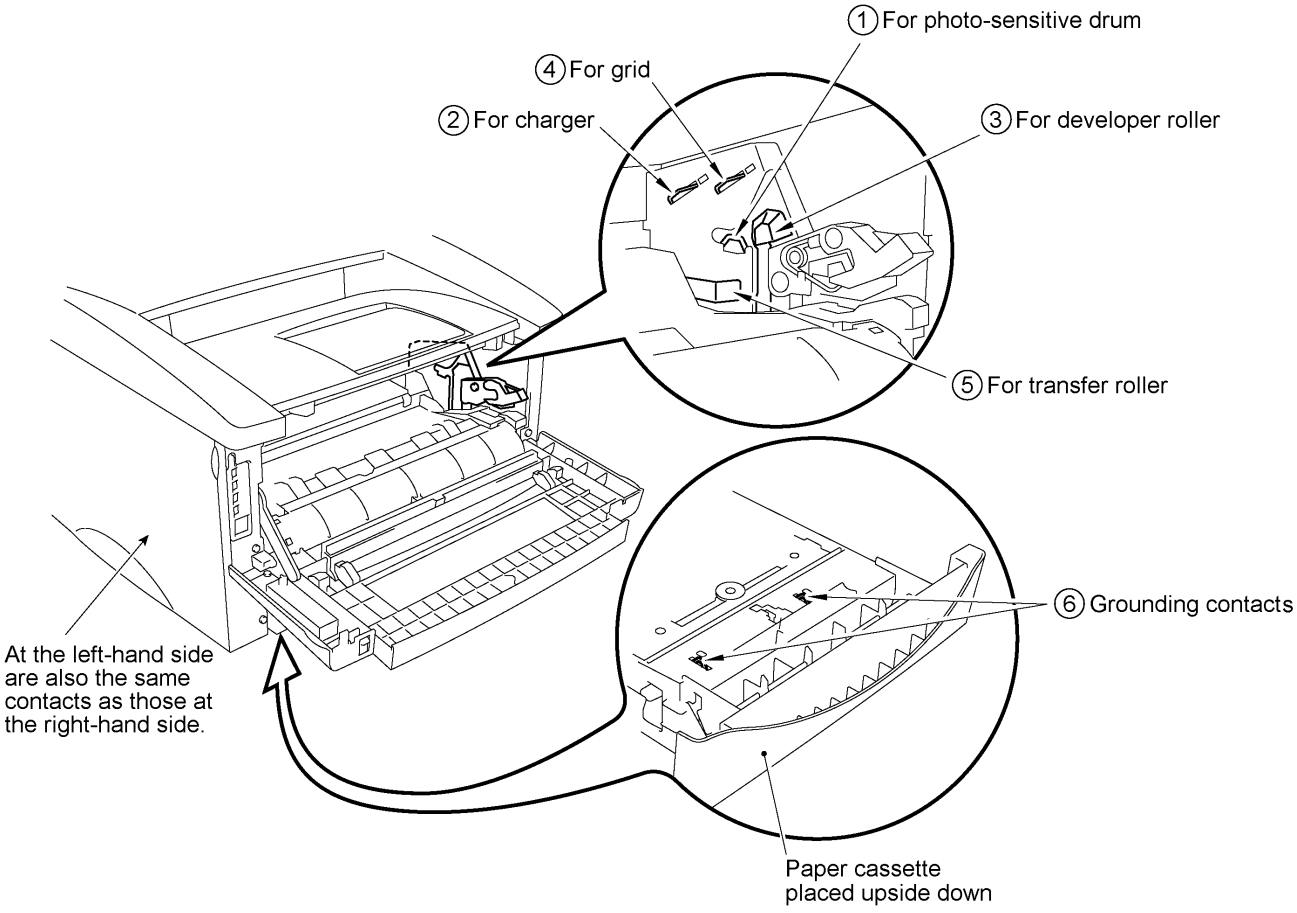
Trouble	Action to be taken
(12) Faulty image registration (Leading edge of image starts too late on paper) 	<u>At the printer side</u> ● Instruct the user not to load paper exceeding the limit on the paper cassette(s). ● Instruct the user to use the recommended types of paper. ● Replace the paper cassette(s). ● Check the position of the registration sensor. ● Replace the drive gear ASSY.
(13) Image distortion or improper image alignment 	<u>In communications</u> Check the following components: - Error code displayed. (Refer to Section 1, "ERROR INDICATION" in this chapter.) - NCU PCB - Main PCB <u>At the scanner</u> Check the following components: - Document take-in roller, separation roller, and their related sections - Document feed roller and its related gears - Scanner motor and its harness - Main PCB <u>At the printer side</u> ● Check that the laser unit is secured with the screws without looseness. ● Check the connection of the polygon motor harness on the engine PCB. ● Check the connection of the laser flat cable on the main PCB. ● Replace the laser unit.
(14) Blurred at either side 	<u>At the printer side</u> ● Check that the equipment is placed on a flat surface. ● Shake the toner cartridge horizontally. If the problem persists, replace it. ● Clean the laser beam window (glass) on the laser unit. ● Replace the laser unit.

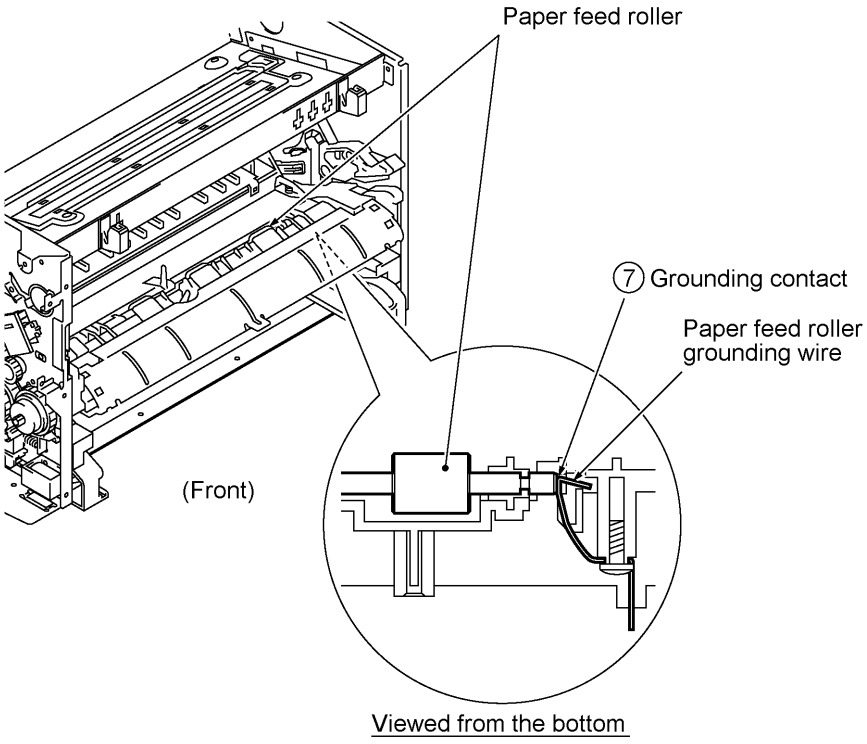
Trouble	Action to be taken
(15) Dirt back of paper	<u>At the printer side</u> • Clean the pressure roller in the heat-fixing unit. Replace the heat-fixing unit. • Replace the drum unit. • Replace the high-voltage power supply PCB.
(16) Poor fixing 	<u>At the printer side</u> • Instruct the user to use paper of the recommended weight (less than 36 lb./m^2). • Clean the toner sensors (LED and light-receiver). • Replace the toner cartridge. • Replace the drum unit. • Check the fitting of the heater thermistor. Replace the heat-fixing unit. • Replace the low-voltage power supply PCB.
(17) Ghost 	<u>At the printer side</u> • Instruct the user to use paper of the recommended weight (less than 36 lb./m^2). • Replace the drum unit. • Replace the high-voltage power supply PCB.
(18) Black spots	<u>At the printer side</u> • Gently wipe off the surface of the photo-sensitive drum with a cotton swab. • Replace the drum unit. • Replace the heat-fixing unit. • Replace the high-voltage power supply PCB.
(19) Light rain 	<u>At the printer side</u> • Replace the drum unit. • Replace the high-voltage power supply PCB.

Trouble	Action to be taken
(20) Fading (black to white) 	<u>At the printer side</u> • Replace the toner cartridge. • Replace the high-voltage power supply PCB.
(21) Gray background 	<u>At the printer side</u> • Instruct the user to use paper of the recommended weight (less than 36 lb./m^2). • Clean the toner sensors (LED and light-receiver). • Check the toner sensor harnesses. • Replace the toner cartridge. • Replace the drum unit. • Replace the high-voltage power supply PCB.
(22) Toner specks 	<u>At the printer side</u> • Instruct the user to use paper of the recommended weight (less than 36 lb./m^2). • Replace the toner cartridge. • Replace the drum unit..

Location of High-voltage Contacts and Grounding Contacts




① For photo-sensitive drum
④ For grid
② For charger
③ For developer roller
⑤ For transfer roller
⑥ Grounding contacts
At the left-hand side are also the same contacts as those at the right-hand side.
Paper cassette placed upside down


Paper feed roller
⑦ Grounding contact
Paper feed roller grounding wire
(Front)
Viewed from the bottom

FAX4750/5750
MFC8300/8600/8700
FAX8350P/8750P
MFC9650

Appendix 1. EEPROM Customizing Codes

EEPROM Customizing Codes

This function allows you to customize the EEPROM according to language, function settings, and firmware switch settings.

Operating Procedure

(1) American models: To make the equipment enter the maintenance mode, press the **Function**, *****, **2**, **8**, **6**, and **4** keys in this order.

|← Within 2 seconds →|

European models: To make the equipment enter the maintenance mode, press the **Menu**, *****, **2**, **8**, **6**, and **4** keys in this order.

|← Within 2 seconds →|

The equipment beeps for approx. one second and displays " ▮▮ MAINTENANCE ▮▮▮ " on the LCD.

(2) Press the **7** and **4** keys in this order in the initial stage of the maintenance mode.

The current customizing code (e.g., 1001 in the case of FAX4750 USA version) appears.

(3) Enter the desired customizing code (e.g., 0002 in the case of FAX4750 Canadian version).

The newly entered code appears.

NOTE: *If a wrong 4-digit code is entered, the equipment will malfunction.*

(4) Press the **Start** key.

The equipment saves the setting and returns to the initial stage of the maintenance mode.

If you press the **Stop** key or no keys are pressed for one minute in the above procedure, the equipment stops the procedure and returns to the initial stage of the maintenance mode.

EEPROM Customizing Codes List

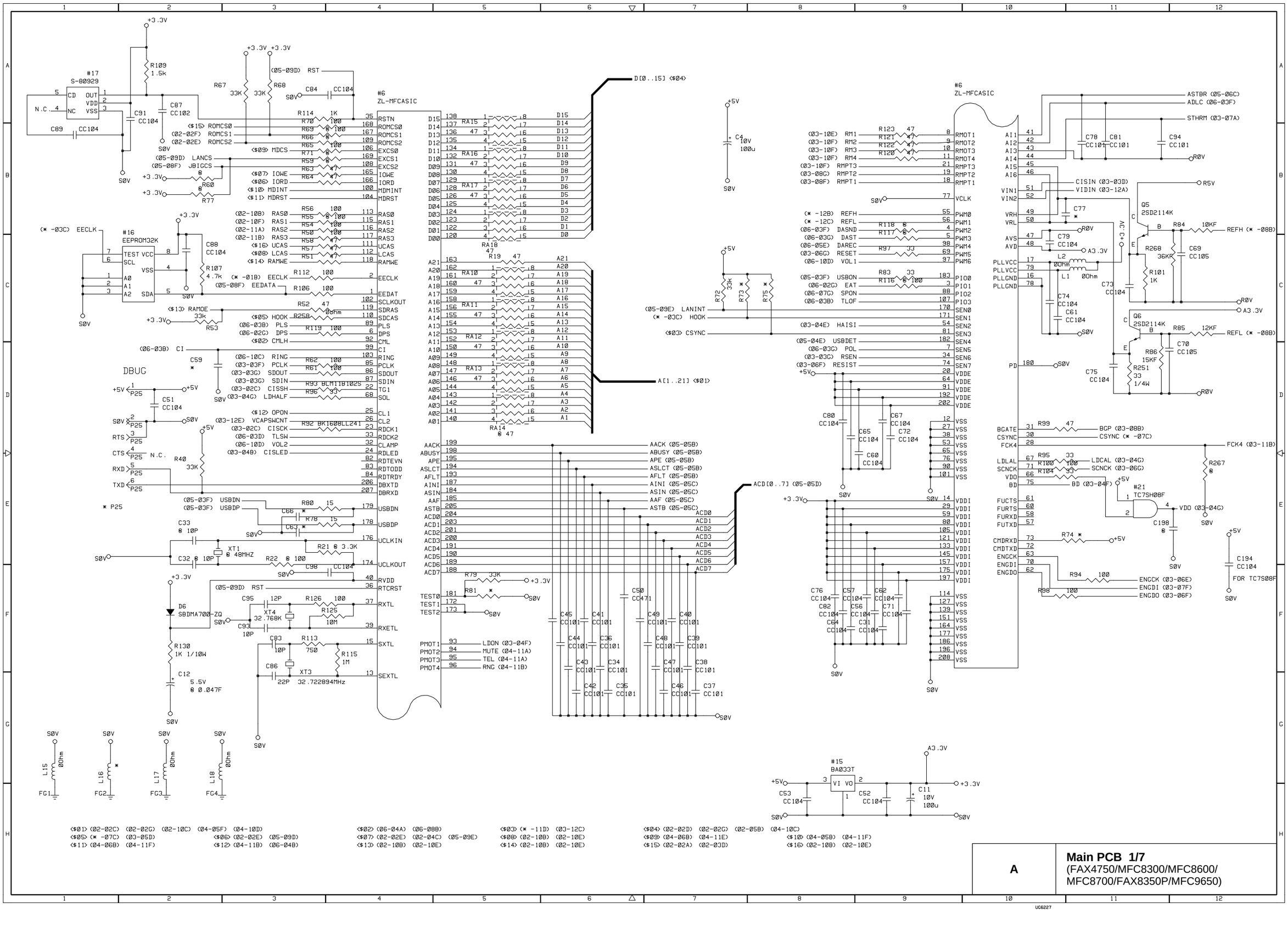
Versions	Model				
	FAX4750	MFC8300	MFC8600	MFC8700	FAX5750
U.S.A.	1001	1101	1201	1001	1001
CANADA	0002	0102	0202	0002	0002
AUSTRALIA	0006	-	0006	-	0006
NEW ZEALAND	0027	-	0027	-	-
CHINA	-	-	-	-	-
TAIWAN	-	-	-	-	-
HONG KONG	-	-	-	-	-
ARGENTINA	-	-	-	-	-
THAILAND	-	-	-	-	-
CHILLE	-	-	-	-	-
SOUTH AMERICA	-	-	-	-	-
ASIA	0040	-	0040	-	-
GULF	-	-	-	-	-
BRAZIL	-	-	-	-	-
INDONESIA	-	-	-	-	-
INDIA	-	-	-	-	-
MEXICO	-	-	-	-	-
RUSSIA	-	-	-	-	-

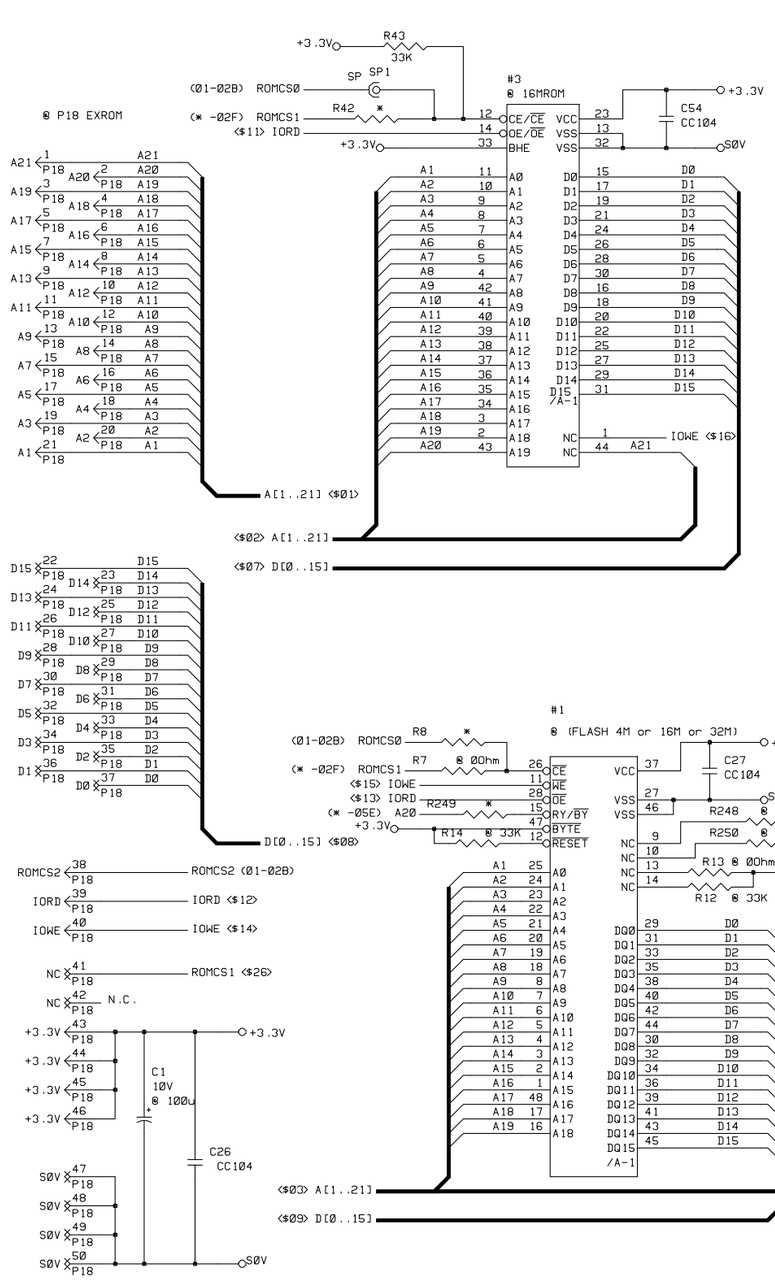
Versions	Model		
	FAX8350P	MFC9650	FAX8750P
GERMANY	0003	0003	0003
U.K.	0004	0004	0004
FRANCE	0005	-	0005
NORWAY	0007	0007	0007
BELGIUM	0008	0008	0008
NETHERLANDS	0009	0009	0009
SWITZERLAND	0010	0010	0010
IRELAND	0011	-	-
FINLAND	-	0012	-
DENMARK	0013	0013	-
AUSTRIA	0014	-	-
SPAIN	-	0015	-
ITALY	-	0016	0016
ISRAEL	-	-	-
POTUGAL	-	-	-
SWEDEN	0026	0026	0026

FAX4750/5750
MFC8300/8600/8700
FAX8350P/8750P
MFC9650

Appendix 2. Circuit Diagrams

A. Main PCB
B. Modem PCB
C. Engine PCB
D. Network Control Unit (NCU) PCB
E. Control Panel PCB
F. Power Supply PCBs


#6
ZL-MFCASIC
#17
S-80929
#16
EEPROM32K
DBUG
#15
BA033T
#21
TC7SH08F
D[0..15] (Ø4)
A[1..21] (Ø1)
ACD[0..7] (Ø5-05D)
AACK (Ø5-05B)
ABUSY (Ø5-05B)
APE (Ø5-05B)
ASLCT (Ø5-05B)
AFLT (Ø5-05B)
AINI (Ø5-05C)
ASIN (Ø5-05C)
AAF (Ø5-05C)
ASTB (Ø5-05C)
LDON (Ø3-04F)
MUTE (Ø4-11A)
TEL (Ø4-11A)
RNG (Ø4-11B)
ASTBR (Ø5-06C)
ADLC (Ø6-03F)
STHRM (Ø3-07A)
CISIN (Ø3-03D)
VIDIN (Ø3-12A)
REFH (✱ -08B)
REFL (✱ -08B)
BGP (Ø3-08B)
CSYNC (✱ -07C)
FCK4 (Ø3-11B)
LDCAL (Ø3-04G)
SCNCK (Ø3-06G)
BD (Ø3-04F)
VDO (Ø3-04G)
ENGCK (Ø3-06E)
ENGDI (Ø3-07F)
ENGDO (Ø3-06F)
FOR TC7S08F
A
Main PCB 1/7
(FAX4750/MFC8300/MFC8600/
MFC8700/FAX8350P/MFC9650)
UC6227



($01) (* -02C) (* -02G) (* -10C) (04-05F) (04-10D)
($04) (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
($07) (01-06A) (* -02E) (04-11G) (05-09A)
($10) (01-06A) (* -02E) (04-11G) (05-09A)
($14) (01-03B) (* -03E) (04-06B) (04-11F)
($18) (01-03C) (* -11B) ($19) (* -10B) (* -10E)
($24) (01-03C) (* -11B) ($25) (* -10B) (* -10E)

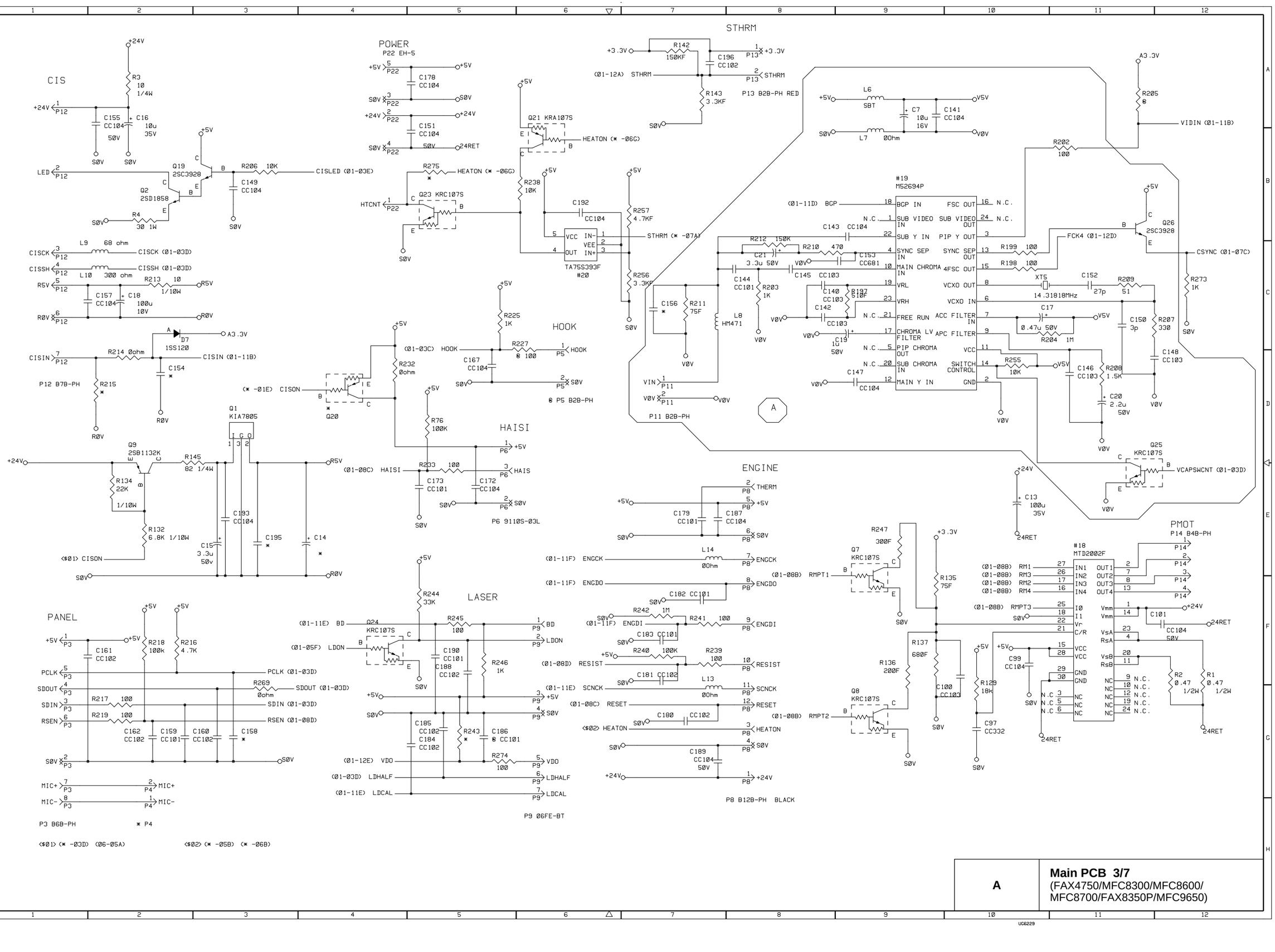
($02) (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
($05) (* -02C) (* -02G) (* -10C) (04-05F) (04-10D)
($08) (* -02D) (* -02G) (* -05B) (04-10C)
($11) (* -02E) (05-09D) ($12) (01-03B) (* -02A) (* -03E) (04-06B) (04-11E)
($15) (* -02E) (* -04C) (05-09E) ($16) (01-03B) (* -03E) (04-06B) (04-11F)
($20) (01-02C) (* -11B) ($21) (01-02C) (* -11B)
($26) (01-02B) (* -02A) (* -03E) ($27) (01-03C) (* -11B)

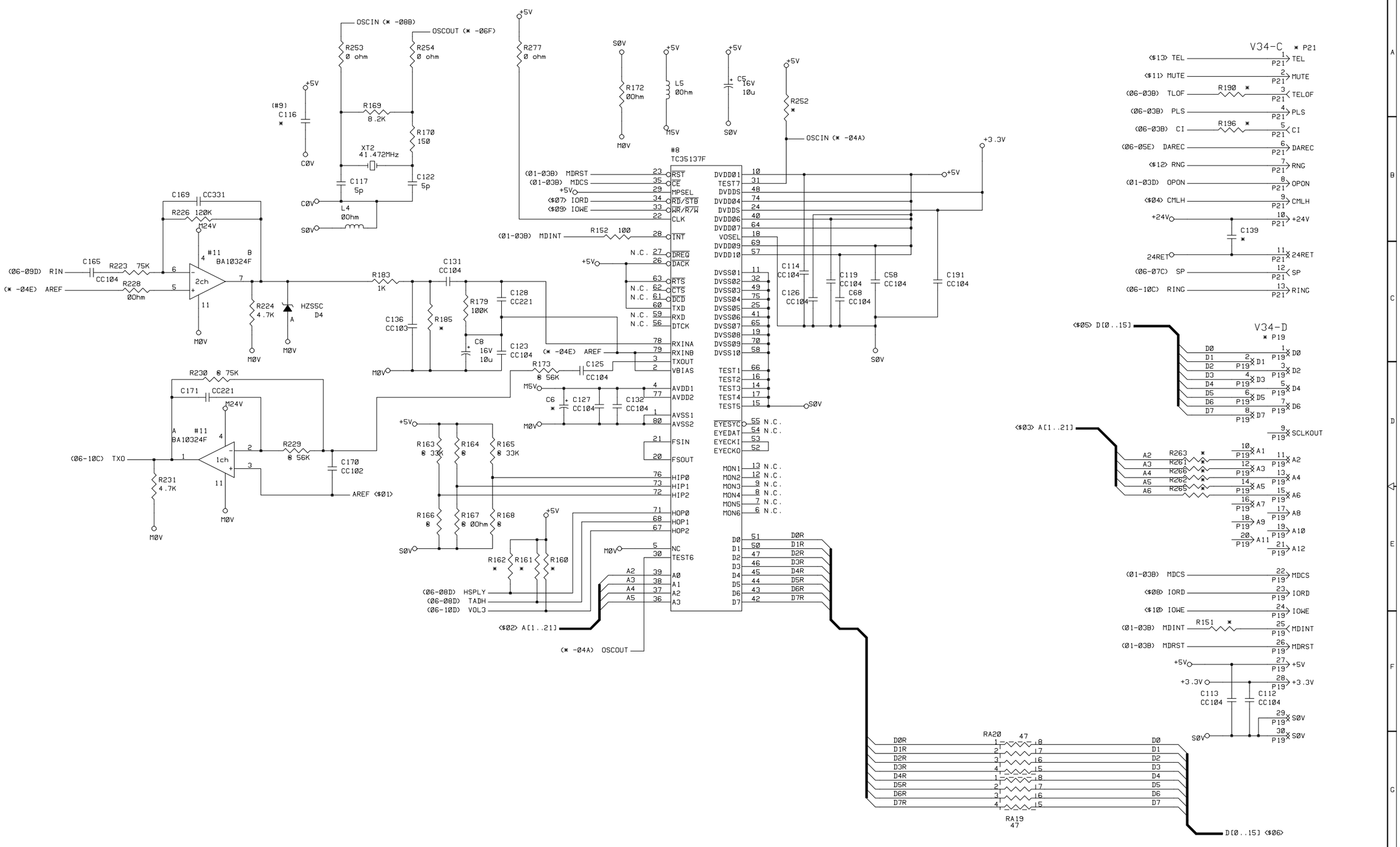
($03) (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
($06) (* -02C) (* -02G) (* -10C) (04-05F) (04-10D)
($09) (01-06A) (* -02E) (04-11G) (05-09A)
($13) (* -02E) (05-09D)
($17) (01-03C) (* -11B)
($23) (01-03C) (* -11B)
($28) (01-03C) (* -11B) ($29) (* -10B) (* -10E)

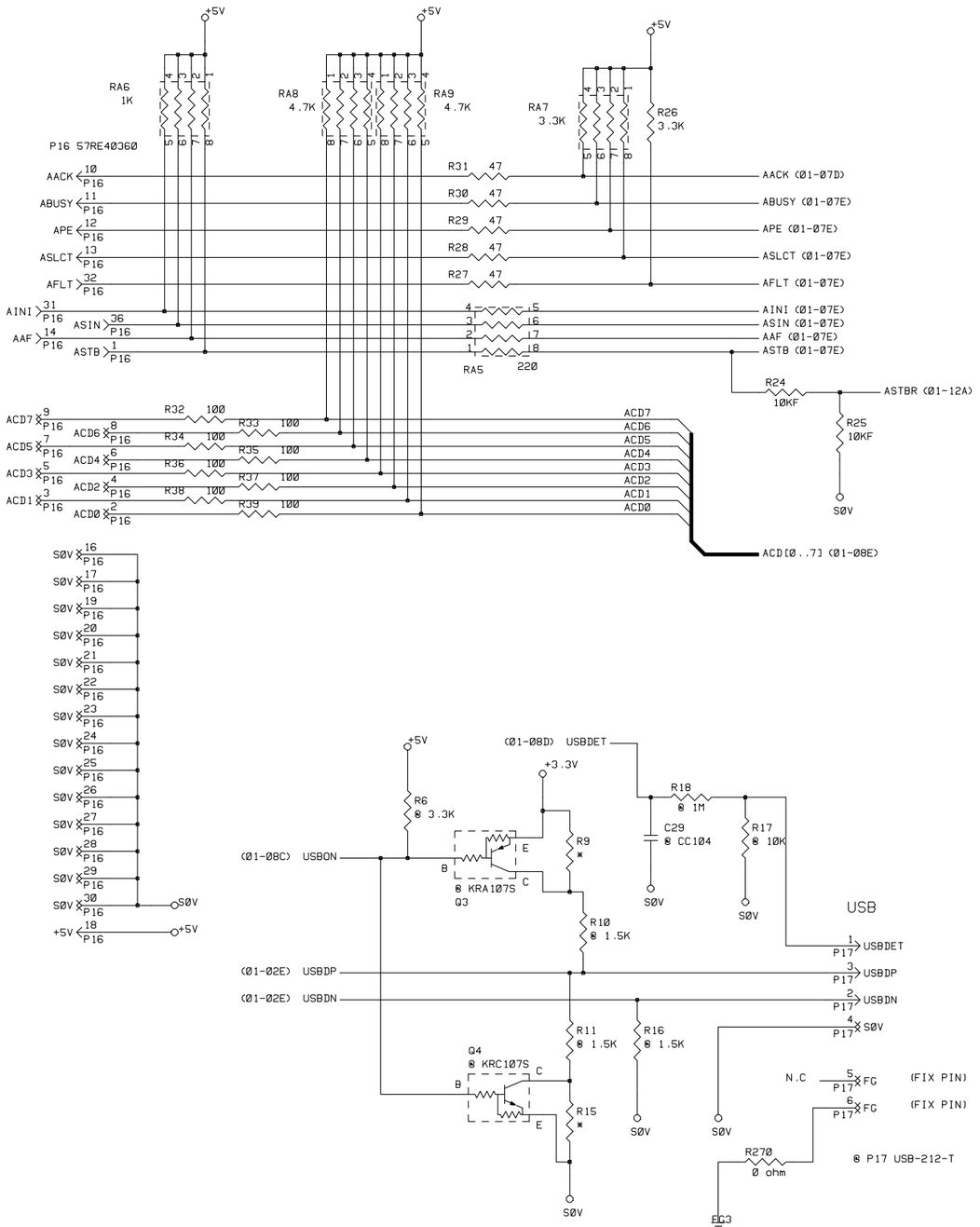
A

Main PCB 2/7
(FAX4750/MFC8300/MFC8600/
MFC8700/FAX8350P/MFC9650)

UGE228


CIS
POWER
P22 EH-5
STHRM
HOOK
HAISI
ENGINE
LASER
PANEL
PMOT
#19
M52694P
#18
MTD2002F
TA75S393F
#20
P13 B2B-PH RED
P11 B2B-PH
P12 B7B-PH
P3 B6B-PH
P6 9110S-03L
P8 B12B-PH BLACK
P9 06FE-BT
P14 B4B-PH
A
Main PCB 3/7
(FAX4750/MFC8300/MFC8600/
MFC8700/FAX8350P/MFC9650)
UC6229


OSCIN (* -08B)
OSCOUT (* -06F)
R253 0 ohm
R254 0 ohm
R277 0 ohm
R169 8.2K
R170 150
XT2 41.472MHz
C116 *
C117 5p
C122 5p
L4 0Ohm
R172 0Ohm
L5 0Ohm
C5 16V 10u
R252 *
OSCIN (* -04A)
#8 TC35137F
(01-03B) MDRST
(01-03B) MDCS
(01-03B) MDINT
R152 100
(06-09D) RIN
(* -04E) AREF
C165 CC104
R223 75K
R228 0Ohm
C169 CC331
R226 120K
#11 BA10324F
2ch
R224 4.7K
HZSSC D4
R183 1K
C131 CC104
C136 CC103
R185 *
R179 100K
C128 CC221
C8 16V 10u
C123 CC104
R173 @ 56K
C125 CC104
C6 *
C127 CC104
C132 CC104
R230 @ 75K
C171 CC221
(06-10C) TXO
R231 4.7K
1ch
R229 @ 56K
C170 CC102
AREF (*01)
R163 @ 33K
R164 @
R165 @ 33K
R166 @
R167 @ 0Ohm
R168 @
R162 *
R161 *
R160 *
(06-08D) HSPLY
(06-08D) TADH
(06-10D) VOL3
(*02) A[1..21]
(* -04A) OSCOUT
DVDD01 10
TEST7 31
DVDDS 48
DVDD04 74
DVDDS 24
DVDD06 64
DVDD07 40
VOSEL 18
DVDD09 69
DVDD10 57
DVSS01 11
DVSS02 32
DVSS03 49
DVSS04 75
DVSS05 25
DVSS06 41
DVSS07 65
DVSS08 19
DVSS09 70
DVSS10 58
TEST1 66
TEST2 16
TEST3 14
TEST4 17
TEST5 15
EYESYC 55 N.C.
EYEDAT 54 N.C.
EYECKI 53
EYECKO 52
MON1 13 N.C.
MON2 12 N.C.
MON3 9 N.C.
MON4 8 N.C.
MON5 7 N.C.
MON6 6 N.C.
D0 51 D0R
D1 50 D1R
D2 47 D2R
D3 46 D3R
D4 45 D4R
D5 44 D5R
D6 43 D6R
D7 42 D7R
C114 CC104
C126 CC104
C119 CC104
C68 CC104
C58 CC104
C191 CC104
RA20 47
RA19 47
D[0..15] (*06)
V34-C * P21
(*13) TEL
(*11) MUTE
(06-03B) TLOF
(06-03B) PLS
(06-03B) CI
(06-05E) DAREC
(*12) RNG
(01-03D) OPON
(*04) CMLH
+24V
C139 *
24RET
(06-07C) SP
(06-10C) RING
R190 *
R196 *
V34-D * P19
(*05) D[0..15]
(*03) A[1..21]
R263 *
R261 *
R266 *
R262 *
R265 *
SCLKOUT
MDCS
IORD
IOWE
MDINT
MDRST
R151 *
C113 CC104
C112 CC104
(*01) (* -01C) (* -06C) (06-03E)
(*02) (01-07D) (02-02C) (02-10C) (02-10F) (05-09C)
(*03) (01-07D) (02-02C) (02-10C) (02-10F) (05-09C)
(*04) (06-04A) (06-08B)
(*05) (01-06A) (02-02E) (* -11G) (05-09A)
(*06) (02-02D) (02-02G) (02-05B) (* -10C)
(*07) (02-02E) (05-09D)
(*08) (02-02E) (05-09D)
(*09) (02-02E) (02-04C) (05-09E)
(*10) (02-02E) (02-04C) (05-09E)
(*11) (01-05F) (06-03E)
(*12) (01-05F) (06-08B)
(*13) (01-05F) (06-08B)
A
Main PCB 4/7
(FAX4750/MFC8300/MFC8600/
MFC8700/FAX8350P/MFC9650)
UC6230



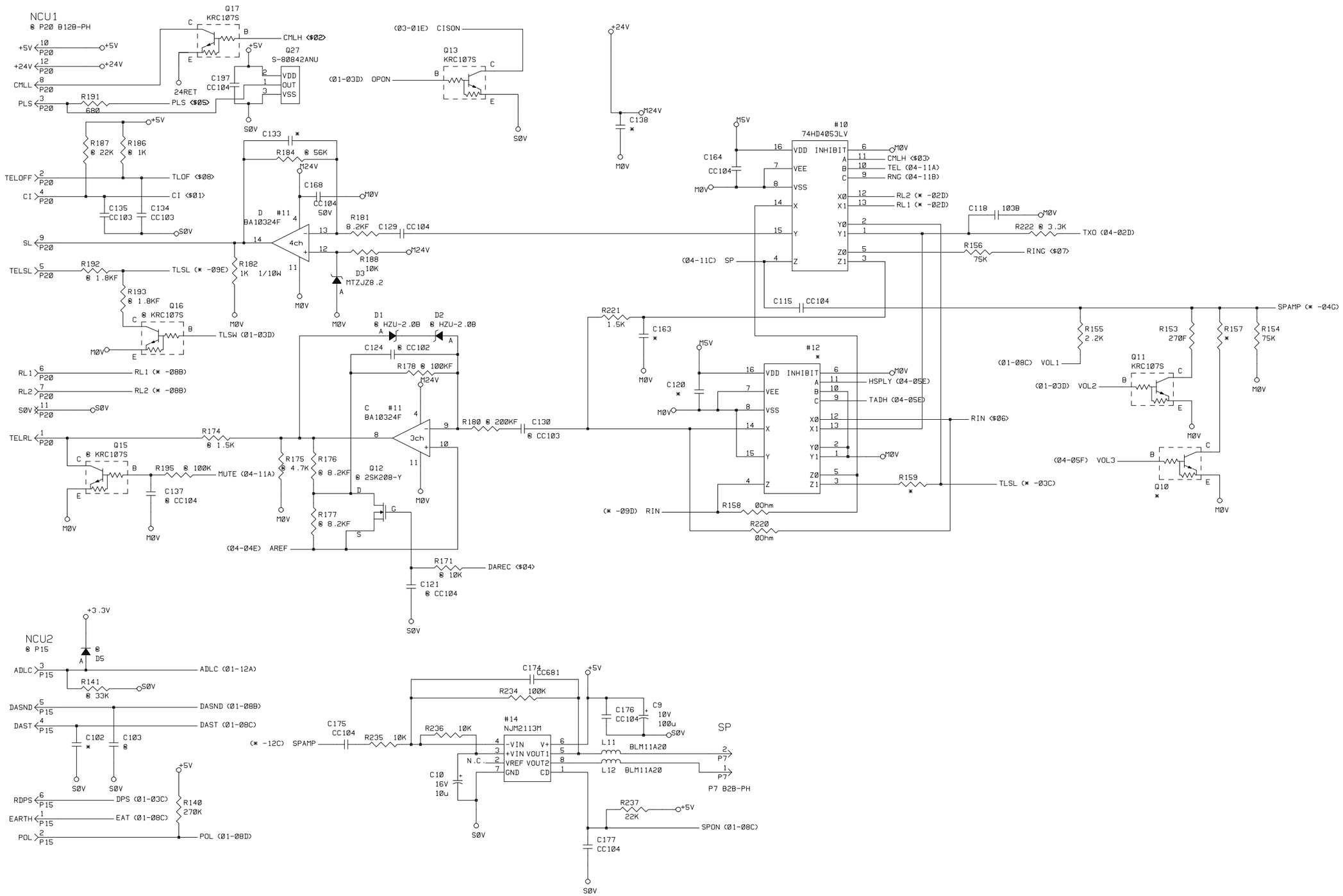
<$Ø1> (Ø2-02C) (Ø2-02G) (Ø2-10C) (Ø4-05F) (Ø4-10D)
<$Ø4> (Ø1-03B) (Ø2-03E) (Ø4-06B) (Ø4-11F)

<$Ø2> (Ø2-02D) (Ø2-02G) (Ø2-05B) (Ø4-10C)
<$Ø5> (Ø1-03A) (Ø1-03F)

<$Ø3> (Ø1-03B) (Ø2-02A) (Ø2-03E) (Ø4-06B) (Ø4-11E)

A	**Main PCB 5/7** (FAX4750/MFC8300/MFC8600/ MFC8700/FAX8350P/MFC9650)

UG6231



A	**Main PCB 6/7** (FAX4750/MFC8300/MFC8600/ MFC8700/FAX8350P/MFC9650)

UC6232

	No.	US				EUR		ASA/OCE	
		FAX4750 ASSY. 1 UG6224001	MFC8300 ASSY. 2 UG6225001	MFC8600 ASSY. 3 UG6226001	MFC8700 ASSY. 4 LG2192001	FAX8350P ASSY. 21 LG2082001	MFC9650 ASSY. 31 LG2252001	FAX4750 ASSY. 22 LG2250001	MFC8600 ASSY. 32 LG2251001
USB	XT1	NOT ASSY	XTAL48.00MHZ	XTAL48.00MHZ	XTAL48.00MHZ	NOT ASSY	XTAL48.00MHZ	NOT ASSY	XTAL48.00MHZ
	C32	NOT ASSY	Cera C 50C100CH	Cera C 50C100CH	Cera C 50C100CH	NOT ASSY	Cera C 50C100CH	NOT ASSY	Cera C 50C100CH
	C33	0 Ω	Cera C 50C100CH	Cera C 50C100CH	Cera C 50C100CH	0 Ω	Cera C 50C100CH	0 Ω	Cera C 50C100CH
	R21	NOT ASSY	3.3K Ω	3.3KΩ	3.3KΩ	NOT ASSY	3.3KΩ	NOT ASSY	3.3KΩ
	R22	NOT ASSY	100Ω	100Ω	100Ω	NOT ASSY	100Ω	NOT ASSY	100Ω
LAN	R59	NOT ASSY	NOT ASSY	NOT ASSY	100Ω	NOT ASSY	100Ω	NOT ASSY	100Ω
	R71	NOT ASSY	NOT ASSY	NOT ASSY	100Ω	NOT ASSY	100Ω	NOT ASSY	100Ω
ROMCS1	R69	NOT ASSY	100Ω	100Ω	100Ω	100Ω	100Ω	100Ω	100Ω
ROMCS2	R66	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	100Ω	100Ω	100Ω	100Ω
RAS1	R55	100Ω	NOT ASSY	100Ω	100Ω	100Ω	100Ω	100Ω	100Ω
ADRESS	RA14	47Ω	47Ω	47Ω	47Ω	47Ω	47Ω	47Ω	47Ω
DAST	R117	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	BLM11B102S	BLM11B102S	BLM11B102S	BLM11B102S
DASND	R118	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	10KΩ	10KΩ
EAT	R116	100Ω	100Ω	100Ω	100Ω	BLM11B102S	BLM11B102S	BLM11B102S	BLM11B102S
FCK4	R267	0 Ω	0 Ω	NOT ASSY	NOT ASSY	0 Ω	0 Ω	0 Ω	0 Ω
VDO(#21)	C198	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
LANCS P.U.	R60	NOT ASSY	NOT ASSY	NOT ASSY	33KΩ	NOT ASSY	33KΩ	NOT ASSY	33KΩ
EEPROM (LAN)CLK P.U.	R77	NOT ASSY	NOT ASSY	NOT ASSY	33KΩ	NOT ASSY	33KΩ	NOT ASSY	33KΩ
SUPER CAP.	C12	5.5V/0.047F	5.5V/0.047F	5.5V/0.047F	5.5V/0.047F	5.5V/0.22F	5.5V/0.22F	5.5V/0.22F	5.5V/0.22F
ROM	#3	16MbitFLASH	16MbitFLASH	16MbitFLASH	16MbitFLASH	16MbitFLASH	16MbitFLASH	16MbitFLASH	16MbitFLASH
FLASH	#1	NOT ASSY	4MbitFLASH	4MbitFLASH	16MbitFLASH	16MbitFLASH	32MbitFLASH	16MbitFLASH	32MbitFLASH
	R7	NOT ASSY	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω	0Ω
	R12	NOT ASSY	33KΩ	33KΩ	NOT ASSY	NOT ASSY	3.3KΩ	NOT ASSY	3.3KΩ
	R13	NOT ASSY	0 Ω	0 Ω	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
	R14	NOT ASSY	33KΩ	33KΩ	33KΩ	33KΩ	33KΩ	33KΩ	33KΩ
	R248	NOT ASSY	NOT ASSY	NOT ASSY	0 Ω	0 Ω	0 Ω	0 Ω	0 Ω
	R250	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	0 Ω	NOT ASSY	0 Ω
EXROM	P18	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	52340-0501	52340-0501	52340-0501	52340-0501
	C1	10V/100 µ	10V/100µ	10V/100µ	10V/100µ	10V/100µ (7mm height)	10V/100µ (7mm height)	10V/100µ (7mm height)	10V/100µ (7mm height)
DRAM	#5	EDODRAM: 16Mbit	NOT ASSY	EDODRAM: 16Mbit	EDODRAM: 16Mbit	EDODRAM: 16Mbit	EDODRAM: 16Mbit	EDODRAM: 16Mbit	EDODRAM: 16Mbit
	C105	CC25C104	NOT ASSY	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104
	C108	CC25C104	NOT ASSY	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104
	C110	CC25C104	NOT ASSY	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104	CC25C104
EXRAM	P2	DHB-PB40	DHB-PB40	DHB-PB40	DHB-PB40	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
VIDEO CAPTURE BLOCK	A	NOT ASSY	NOT ASSY	ASSY	ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
	R205	1KΩ	1KΩ	NOT ASSY	NOT ASSY	1KΩ	1KΩ	1KΩ	1KΩ
VDO(P9)	C186	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH	Cera C 50C101CH
HOOK	P5	B2B-PH	B2B-PH	B2B-PH	B2B-PH	NOT ASSY	NOT ASSY	B2B-PH	B2B-PH
	R227	100Ω	100Ω	100Ω	100Ω	NOT ASSY	NOT ASSY	100Ω	100Ω

	No.	US FAX4750 ASSY. 1 UG6224001	MFC8300 ASSY. 2 UG6225001	MFC8600 ASSY. 3 UG6226001	MFC8700 ASSY. 4 LG2192001	EUR FAX8350P ASSY. 21 LG2082001	MFC9650 ASSY. 31 LG2252001	ASA/OCE FAX4750 ASSY. 22 LG2250001	MFC8600 ASSY 32 LG2251001
MODEL	R165	NOT ASSY	NOT ASSY	33KΩ	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
DETEC-TION	R168	0 Ω	0 Ω	NOT ASSY	0 Ω	0 Ω	0 Ω	0 Ω	0 Ω
	R164	NOT ASSY	NOT ASSY	NOT ASSY	33KΩ	NOT ASSY	NOT ASSY	33KΩ	33KΩ
	R167	0 Ω	0 Ω	0 Ω	NOT ASSY	0 Ω	0 Ω	NOT ASSY	NOT ASSY
	R163	NOT ASSY	33KΩ	33KΩ	33KΩ	NOT ASSY	33KΩ	NOT ASSY	33KΩ
	R166	0 Ω	NOT ASSY	NOT ASSY	NOT ASSY	0 Ω	NOT ASSY	0 Ω	NOT ASSY
TX. AMP	R173	56KΩ	56KΩ	56KΩ	56KΩ	56KΩ (F)	56KΩ (F)	56KΩ (F)	56KΩ (F)
	R229	56KΩ	56KΩ	56KΩ	56KΩ	56KΩ (F)	56KΩ (F)	56KΩ (F)	56KΩ (F)
	R230	75KΩ	75KΩ	75KΩ	75KΩ	75KΩ (F)	75KΩ (F)	75K (F)	75KΩ (F)
USB	P17	NOT ASSY	USB-212-T	USB-212-T	USB-212-T	NOT ASSY	USB-212-T	NOT ASSY	USB-212-T
	Q3	NOT ASSY	KRA107S	KRA107S	KRA107S	NOT ASSY	KRA107S	NOT ASSY	KRA107S
	Q4	NOT ASSY	KRC107S	KRC107S	KRC107S	NOT ASSY	KRC107S	NOT ASSY	KRC107S
	R6	NOT ASSY	3.3K Ω	3.3KΩ	3.3KΩ	NOT ASSY	3.3KΩ	NOT ASSY	3.3KΩ
	R10	NOT ASSY	1.5K Ω	1.5KΩ	1.5KΩ	NOT ASSY	1.5KΩ	NOT ASSY	1.5KΩ
	R11	NOT ASSY	1.5K Ω	1.5KΩ	1.5KΩ	NOT ASSY	1.5KΩ	NOT ASSY	1.5KΩ
	R16	NOT ASSY	1.5K Ω	1.5KΩ	1.5KΩ	NOT ASSY	1.5KΩ	NOT ASSY	1.5KΩ
	R17	NOT ASSY	10KΩ	10KΩ	10KΩ	NOT ASSY	10KΩ	NOT ASSY	10KΩ
	R18	NOT ASSY	1MΩ	1MΩ	1MΩ	NOT ASSY	1MΩ	NOT ASSY	1MΩ
	C29	0 Ω	CC25C104	CC25C104	CC25C104	0 Ω	CC25C104	0 Ω	CC25C104
LAN	P1	NOT ASSY	NOT ASSY	NOT ASSY	DHB-PB34	DHB-PB34	DHB-PB34	NOT ASSY	DHB-PB34
	R5	NOT ASSY	NOT ASSY	NOT ASSY	100Ω	100Ω	100Ω	NOT ASSY	100Ω
NCU1	P20	B12B-PH	B12B-PH	B12B-PH	B12B-PH	B11B-PH	B11B-PH	B12B-PH	B12B-PH
NCU2	P15	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	B6B-PH	B6B-PH	B6B-PH	B6B-PH
TLOF	R186	1KΩ	1KΩ	1KΩ	1KΩ	1KΩ	1KΩ	22KΩ	22KΩ
CI	R187	22KΩ	22KΩ	22KΩ	22KΩ	120KΩ	120KΩ	120KΩ	120KΩ
DASND	C103	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	CC25C104	CC25C104
ADLC	D5	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY	SID1SS120	SID1SS120
	R141	33KΩ	33KΩ	33KΩ	33KΩ	33KΩ	33KΩ	NOT ASSY	NOT ASSY
TXO	R222	3.3KΩ	3.3KΩ	3.3KΩ	3.3KΩ	3.3KΩ (F)	3.3KΩ (F)	3.3KΩ (F)	3.3KΩ (F)
TX. AMP	R184	56KΩ	56KΩ	56KΩ	56KΩ	56KΩ (F)	56KΩ (F)	56KΩ (F)	56KΩ (F)
TLSL	R192	1.8K Ω (F)	1.8KΩ (F)	1.8KΩ (F)	1.8KΩ (F)	NOT ASSY	NOT ASSY	0 Ω	0 Ω
	R193	1.8K Ω (F)	1.8KΩ (F)	1.8KΩ (F)	1.8KΩ (F)	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
	Q16	KRC107S	KRC107S	KRC107S	KRC107S	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
RX. AMP	D1	ZDHZU-2.0B	ZDHZU-2.0B	ZDHZU-2.0B	ZDHZU-2.0B	NOT ASSY	NOT ASSY	ZDHZU-2.0B	ZDHZU-2.0B
	D2	ZDHZU-2.0B	ZDHZU-2.0B	ZDHZU-2.0B	ZDHZU-2.0B	NOT ASSY	NOT ASSY	ZDHZU-2.0B	ZDHZU-2.0B
	C124	CC50C102B	CC50C102B	CC50C102B	CC50C102B	NOT ASSY	NOT ASSY	NOT ASSY	NOT ASSY
	R178	100KΩ (F)	100KΩ (F)	100KΩ (F)	100KΩ (F)	0 Ω	0 Ω	39KΩ (F)	39KΩ (F)
	C130	CC50C103B	CC50C103B	CC50C103B	CC50C103B	NOT ASSY	NOT ASSY	CC25C104	CC25C104
	R180	200KΩ (F)	200KΩ (F)	200KΩ (F)	200KΩ (F)	NOT ASSY	NOT ASSY	130KΩ (F)	130KΩ (F)
	R174	1.5K Ω	1.5KΩ	1.5KΩ	1.5KΩ	NOT ASSY	NOT ASSY	1.5KΩ (F)	1.5KΩ (F)
	R175	4.7K Ω	4.7KΩ	4.7KΩ	4.7KΩ	NOT ASSY	NOT ASSY	4.7KΩ (F)	4.7KΩ (F)
	R176	8.2K Ω (F)	8.2KΩ (F)	8.2KΩ (F)	8.2KΩ (F)	0 Ω	0 Ω	1KΩ (F)	1KΩ (F)
	R177	8.2K Ω (F)	8.2KΩ (F)	8.2KΩ (F)	8.2KΩ (F)	NOT ASSY	NOT ASSY	680Ω (F)	680Ω (F)
	Q12	2SK208-Y	2SK208-Y	2SK208-Y	2SK208-Y	NOT ASSY	NOT ASSY	2SK208	2SK208
	R171	10KΩ	10KΩ	10KΩ	10KΩ	NOT ASSY	NOT ASSY	10KΩ	10KΩ
	C121	CC25C104	CC25C104	CC25C104	CC25C104	NOT ASSY	NOT ASSY	CC25C104	CC25C104
	Q15	KRC107S	KRC107S	KRC107S	KRC107S	NOT ASSY	NOT ASSY	KRC107S	KRC107S
	R195	100KΩ	100KΩ	100KΩ	100KΩ	NOT ASSY	NOT ASSY	100KΩ	100KΩ
	C137	CC25C104	CC25C104	CC25C104	CC25C104	NOT ASSY	NOT ASSY	CC25C104	CC25C104

A	**Main PCB 7/7** (FAX4750/MFC8300/MFC8600/ MFC8700/FAX8350P/MFC9650)

#17
S-80929

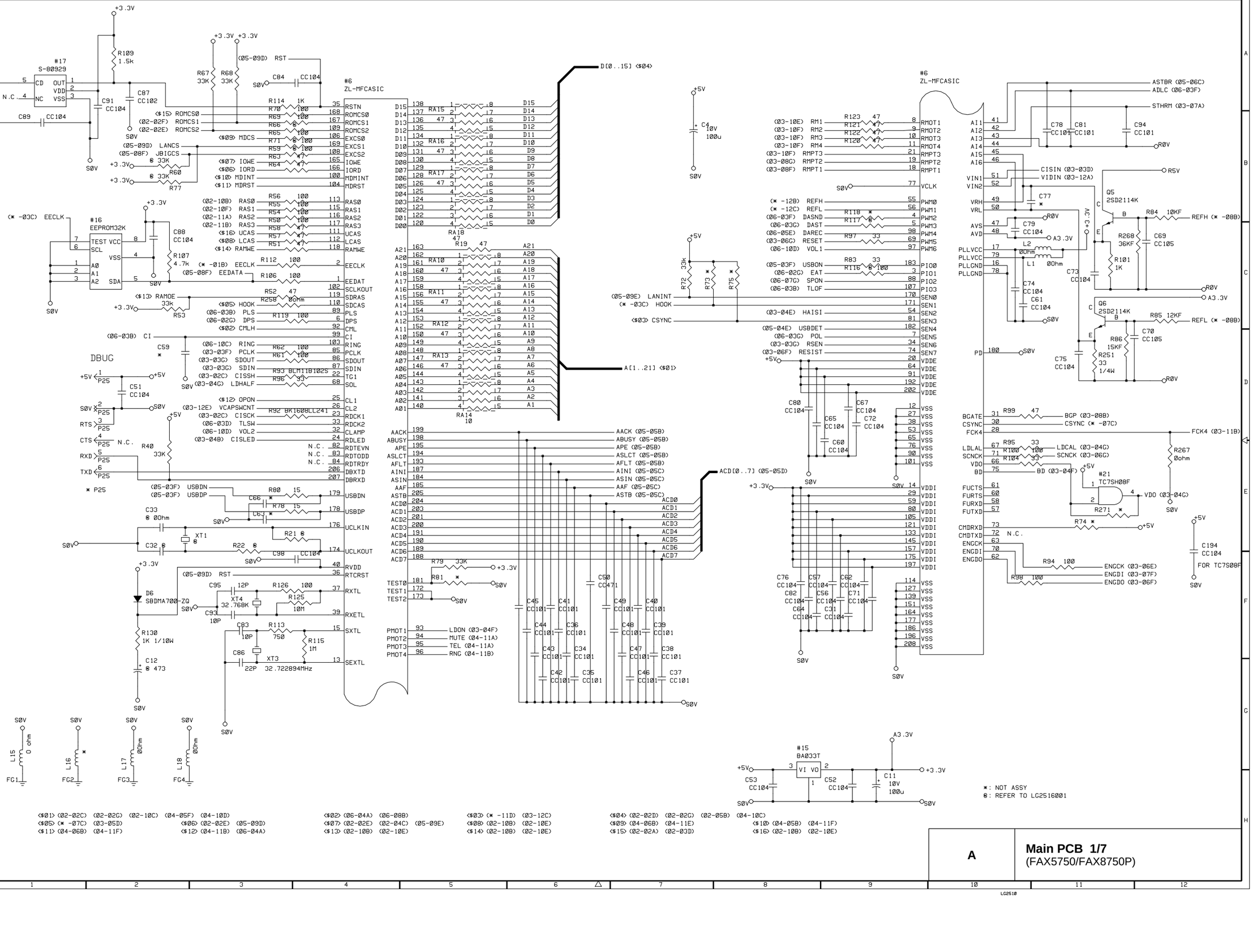
#16
EEPROM32K

#6
ZL-MFCASIC

DBUG

#15
BA033T

#21
TC7SH08F



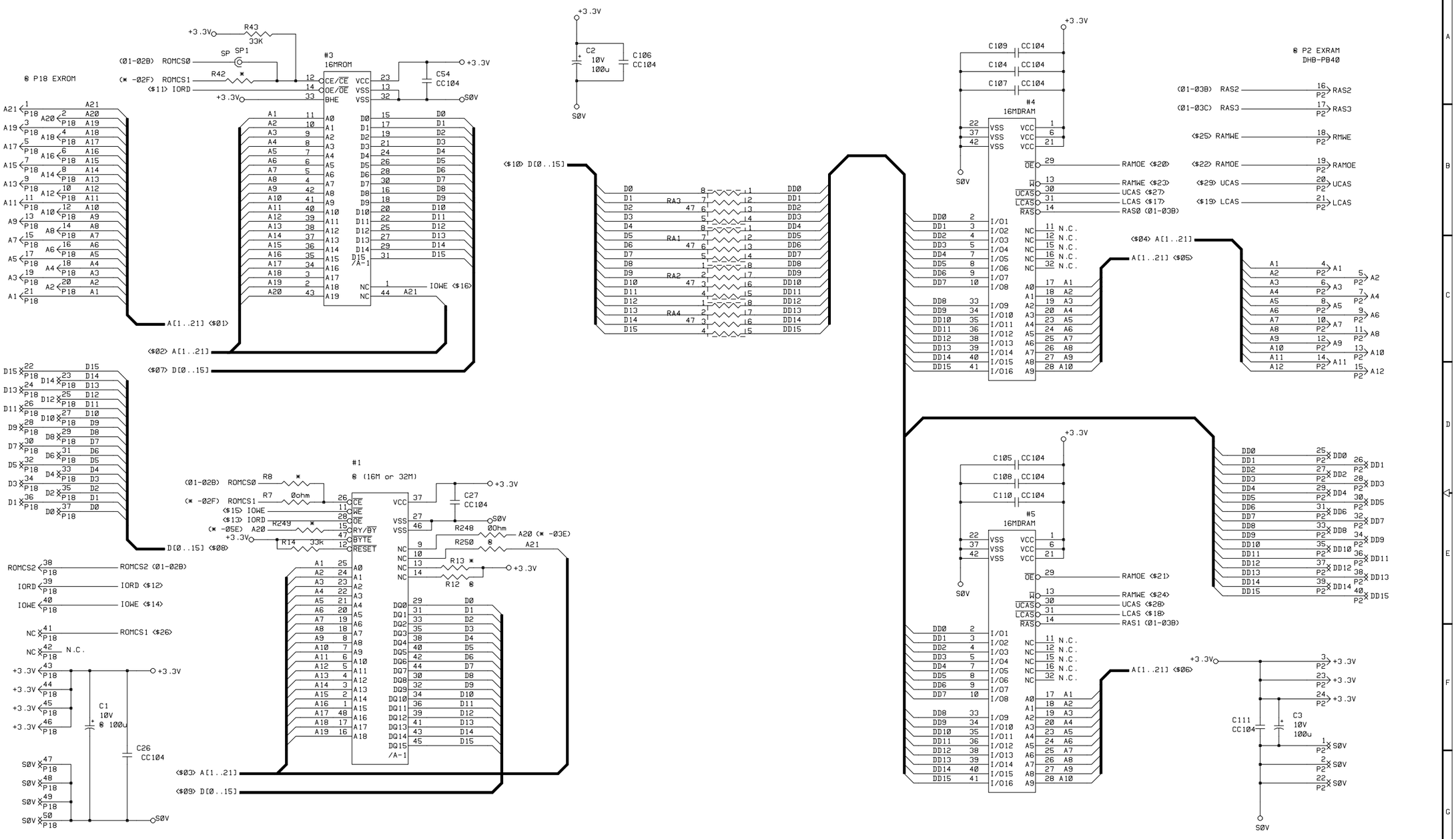
(<$01>) (02-02C) (02-02G) (02-10C) (04-05F) (04-10D)
(<$05>) (* -07C) (03-05D) (<$06>) (02-02E) (05-09D)
(<$11>) (04-06B) (04-11F) (<$12>) (04-11B) (06-04A)

(<$02>) (06-04A) (06-08B)
(<$07>) (02-02E) (02-04C) (05-09E)
(<$13>) (02-10B) (02-10E)

(<$03>) (* -11D) (03-12C)
(<$08>) (02-10B) (02-10E)
(<$14>) (02-10B) (02-10E)

(<$04>) (02-02D) (02-02G) (02-05B) (04-10C)
(<$09>) (04-06B) (04-11E) (<$10>) (04-05B) (04-11F)
(<$15>) (02-02A) (02-03D) (<$16>) (02-10B) (02-10E)

A	**Main PCB 1/7** (FAX5750/FAX8750P)



*: NOT ASSY
@: REFER TO LG2516001

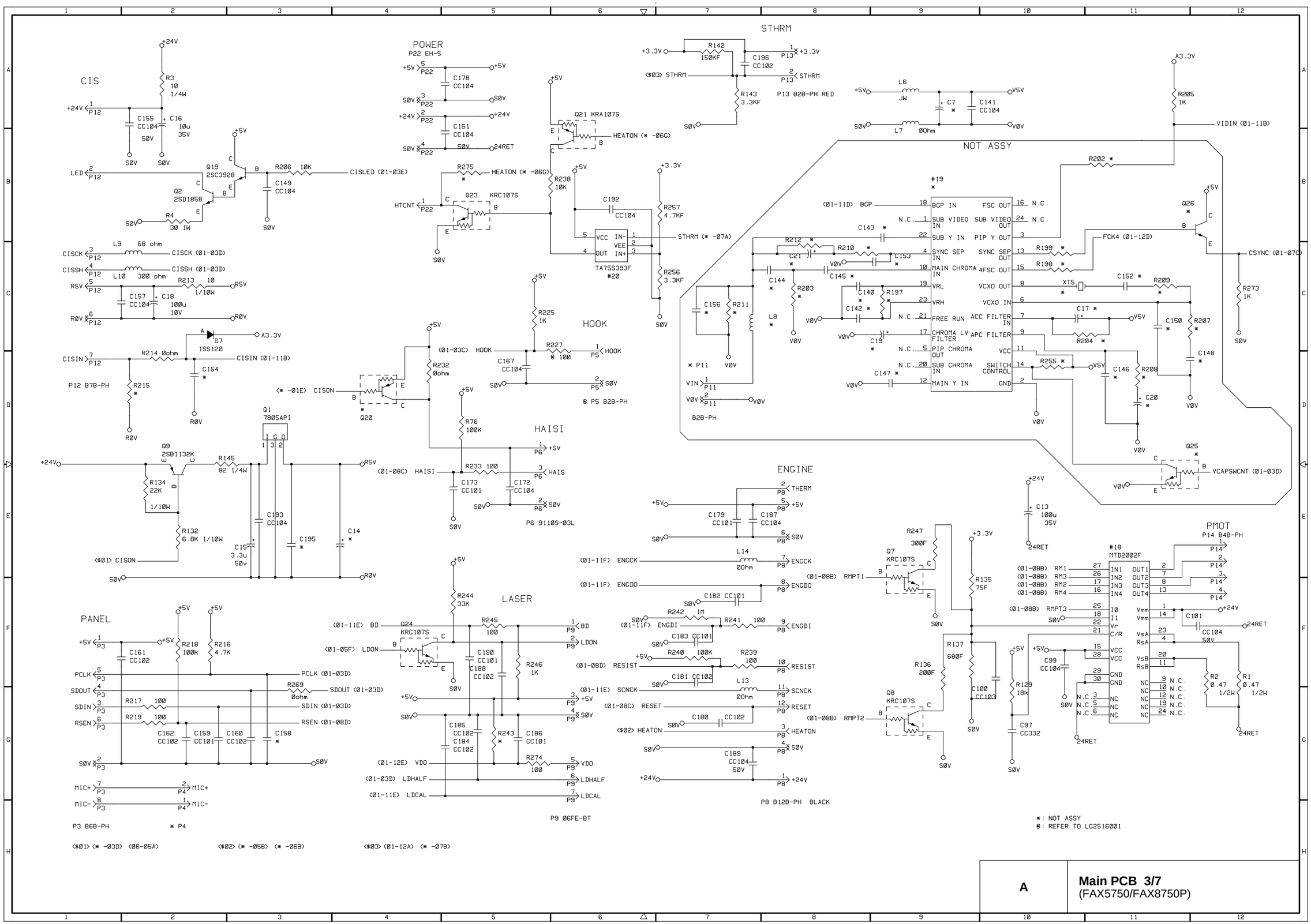
<$01> (* -02C) (* -02C) (* -10C) (04-05F) (04-10D)
<$04> (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
<$07> (01-06A) (* -02E) (04-11G) (05-09A)
<$10> (01-06A) (* -02E) (04-11G) (05-09A)
<$14> (01-03B) (* -03E) (04-06B) (04-11F)
<$18> (01-03C) (* -11B) <$19> (* -10B) (* -10E)
<$24> (01-03C) (* -11B) <$25> (* -10B) (* -10E)

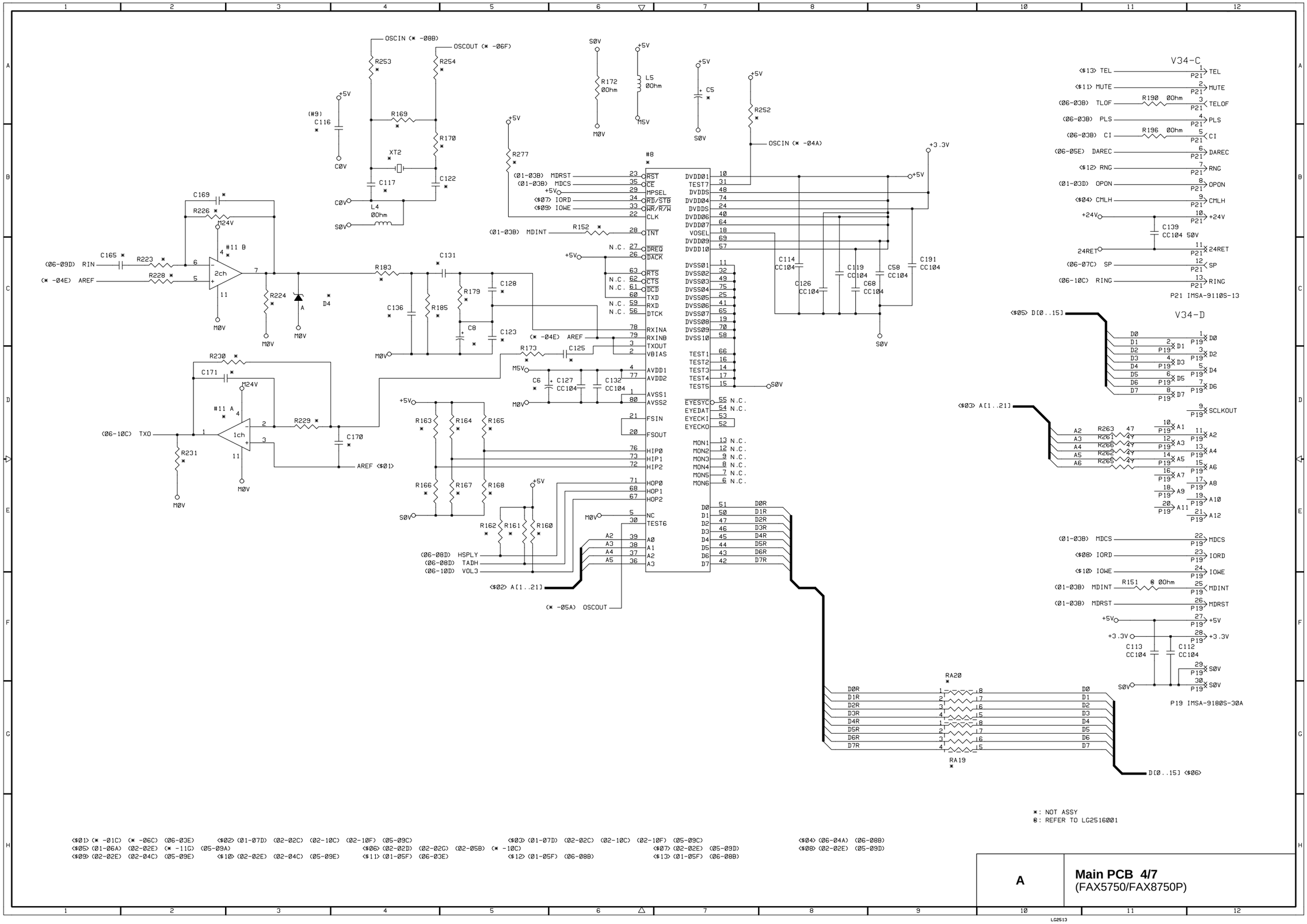
<$02> (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
<$05> (* -02C) (* -02C) (* -10C) (04-05F) (04-10D)
<$08> (* -02D) (* -02C) (* -05B) (04-10C)
<$11> (* -02E) (05-09D)
<$15> (* -02E) (* -04C) (05-09E)
<$20> (01-02C) (* -11B)
<$26> (01-02B) (* -02A) (* -03E)
<$12> (01-03B) (* -02A) (* -03E) (04-06B) (04-11E)
<$16> (01-03B) (* -03E) (04-06B) (04-11F)
<$21> (01-02C) (* -11B)
<$27> (01-03C) (* -11B)

<$03> (01-07D) (* -02C) (* -10C) (* -10F) (05-09C)
<$06> (* -02C) (* -02C) (* -10C) (04-05F) (04-10D)
<$09> (01-06A) (* -02E) (04-11G) (05-09A)
<$13> (* -02E) (05-09D)
<$17> (01-03C) (* -11B)
<$22> (* -10B) (* -10E)
<$23> (01-03C) (* -11B)
<$28> (01-03C) (* -11B)
<$29> (* -10B) (* -10E)

A	**Main PCB 2/7** (FAX5750/FAX8750P)

LG2511


CIS
POWER
P22 EH-5
STHRM
NOT ASSY
HOOK
HAISI
LASER
ENGINE
PANEL
PMOT
P14 B4B-PH
P11 B2B-PH
P12 B7B-PH
P3 B6B-PH
P4
P5 B2B-PH
P6 9110S-03L
P8 B12B-PH BLACK
P9 06FE-BT
P13 B2B-PH RED
TA75S393F
#20
MTD2002F
#18
#19
BGP IN
SUB VIDEO IN
SUB Y IN
SYNC SEP IN
MAIN CHROMA IN
VRL
VRH
FREE RUN
CHROMA LV FILTER
PIP CHROMA OUT
SUB CHROMA IN
MAIN Y IN
FSC OUT
SUB VIDEO OUT
PIP Y OUT
SYNC SEP OUT
4FSC OUT
VCXO OUT
VCXO IN
ACC FILTER IN
APC FILTER
SWITCH CONTROL
GND
N.C.
VCC
CSYNC (Ø1-07C)
VIDIN (Ø1-11B)
FCK4 (Ø1-12D)
VCAPSWCNT (Ø1-03D)
CISCK (Ø1-03D)
CISSH (Ø1-03D)
CISIN (Ø1-11B)
CISON
HEATON (* -06G)
HTCNT
HOOK
HAISI
LDON
BD
VDO
LDHALF
LDCAL
PCLK (Ø1-03D)
SDOUT (Ø1-03D)
SDIN (Ø1-03D)
RSEN (Ø1-08D)
MIC+
MIC-
THERM
ENGCK
ENGDO
ENGDI
RESET
HEATON
RESIST
SCNCK
RMPT1
RMPT2
RM1
RM3
RM2
RM4
RMPT3
VIN
LED
CISLED (Ø1-03E)
STHRM (* -07A)
HEATON (* -06G)
24RET
Q1 7805API
Q2 2SD1858
Q8 KRC107S
Q9 2SB1132K
Q19 2SC3928
Q20
Q21 KRA107S
Q23 KRC107S
Q24 KRC107S
Q25
Q26
D7 1SS120
L6 JW
L7 0Ohm
L8
L9 68 ohm
L10 300 ohm
L13 0Ohm
L14 0Ohm
R3 10 1/4W
R4 30 1W
R5V
R0V
A3.3V
+24V
+5V
+3.3V
V5V
V0V
S0V
R132 6.8K 1/10W
R134 22K 1/10W
R145 82 1/4W
R205 1K
R206 10K
R213 10
R214 0ohm
R215
R225 1K
R227 100
R232 0ohm
R233 100
R238 10K
R244 33K
R246 1K
R256 3.3KF
R257 4.7KF
R269 0ohm
R273 1K
R76 100K
R142 150KF
R143 3.3KF
R247 300F
R135 75F
R136 200F
R137 680F
R129 18K
R1 0.47 1/2W
R2 0.47 1/2W
C13 100u 35V
C16 10u 35V
C18 100u 10V
C20
C97 CC332
C99 CC104
C100 CC103
C101 CC104 50V
C141 CC104
C149 CC104
C151 CC104 50V
C155 CC104 50V
C157 CC104
C178 CC104
C192 CC104
C193 CC104
C195
C196 CC102
C14
C15 3.3u 50v
C17
C19
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
C37
C38
C39
C40
C41
C42
C43
C44
C45
C46
C47
C48
C49
C50
C51
C52
C53
C54
C55
C56
C57
C58
C59
C60



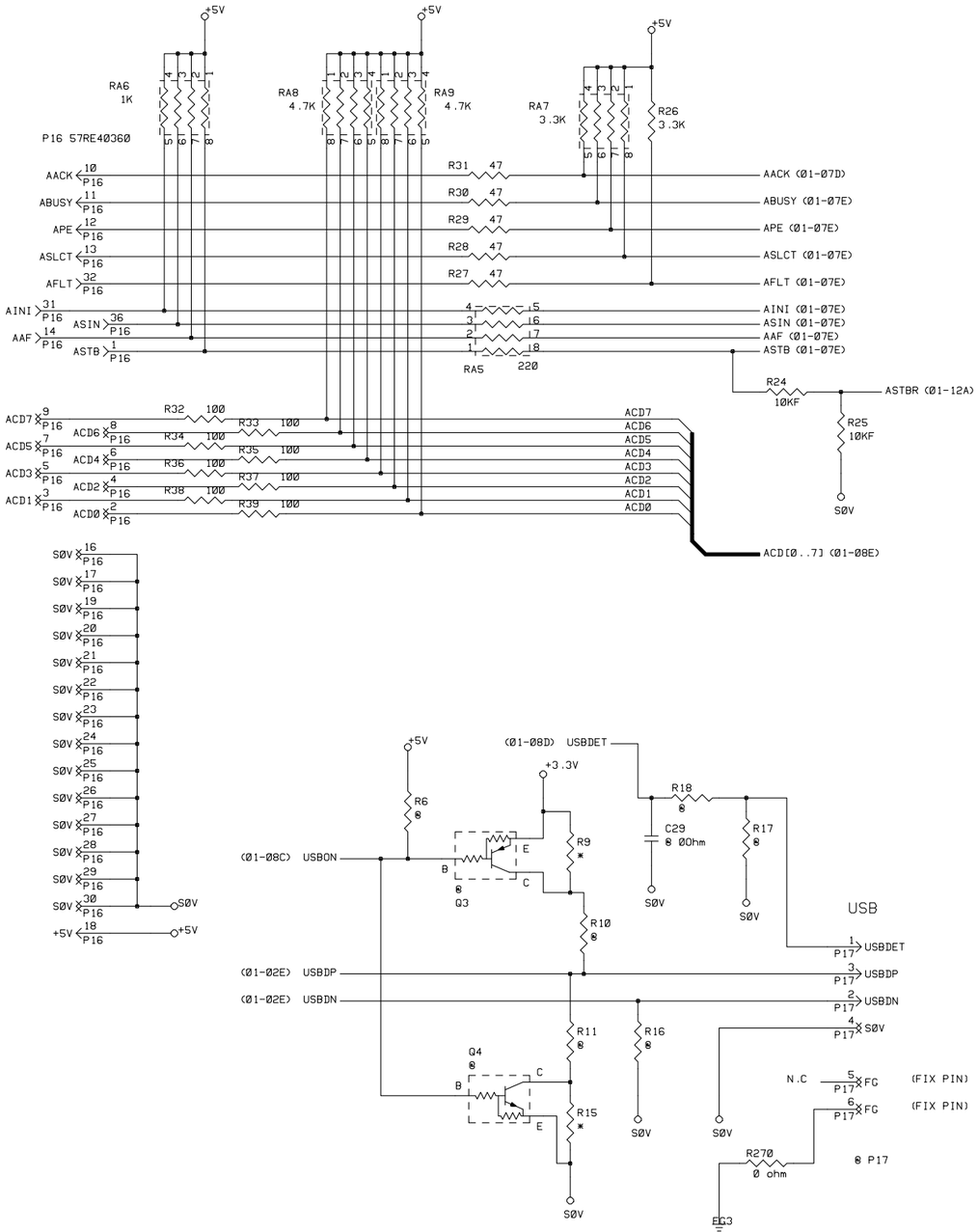
*: NOT ASSY
@: REFER TO LG2516001

<$01> (* -01C) (* -06C) (06-03E)
<$02> (01-07D) (02-02C) (02-10C) (02-10F) (05-09C)
<$03> (01-07D) (02-02C) (02-10C) (02-10F) (05-09C)
<$04> (06-04A) (06-08B)
<$05> (01-06A) (02-02E) (* -11G) (05-09A)
<$06> (02-02D) (02-02G) (02-05B) (* -10C)
<$07> (02-02E) (05-09D)
<$08> (02-02E) (05-09D)
<$09> (02-02E) (02-04C) (05-09E)
<$10> (02-02E) (02-04C) (05-09E)
<$11> (01-05F) (06-03E)
<$12> (01-05F) (06-08B)
<$13> (01-05F) (06-08B)

A

Main PCB 4/7
(FAX5750/FAX8750P)

LG2513



*: NOT ASSY
@: REFER TO LG2516001

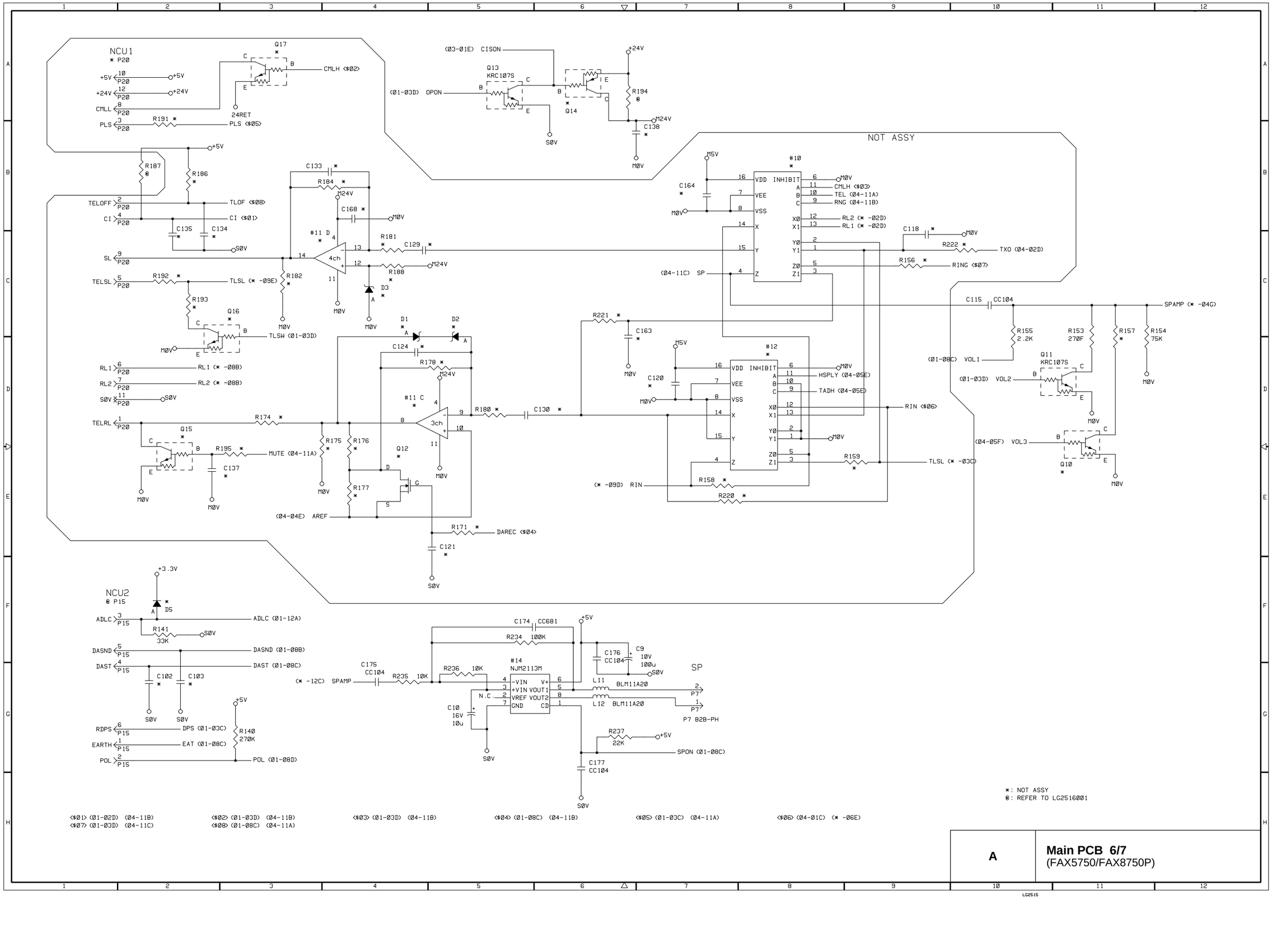
($01) (Ø2-02C) (Ø2-02G) (Ø2-10C) (Ø4-05F) (Ø4-10D)
($04) (Ø1-03B) (Ø2-03E) (Ø4-06B) (Ø4-11F)

($02) (Ø2-02D) (Ø2-02G) (Ø2-05B) (Ø4-10C)
($05) (Ø1-03A) (Ø1-03F)

($03) (Ø1-03B) (Ø2-02A) (Ø2-03E) (Ø4-06B) (Ø4-11E)

A	**Main PCB 5/7** (FAX5750/FAX8750P)

LG2514



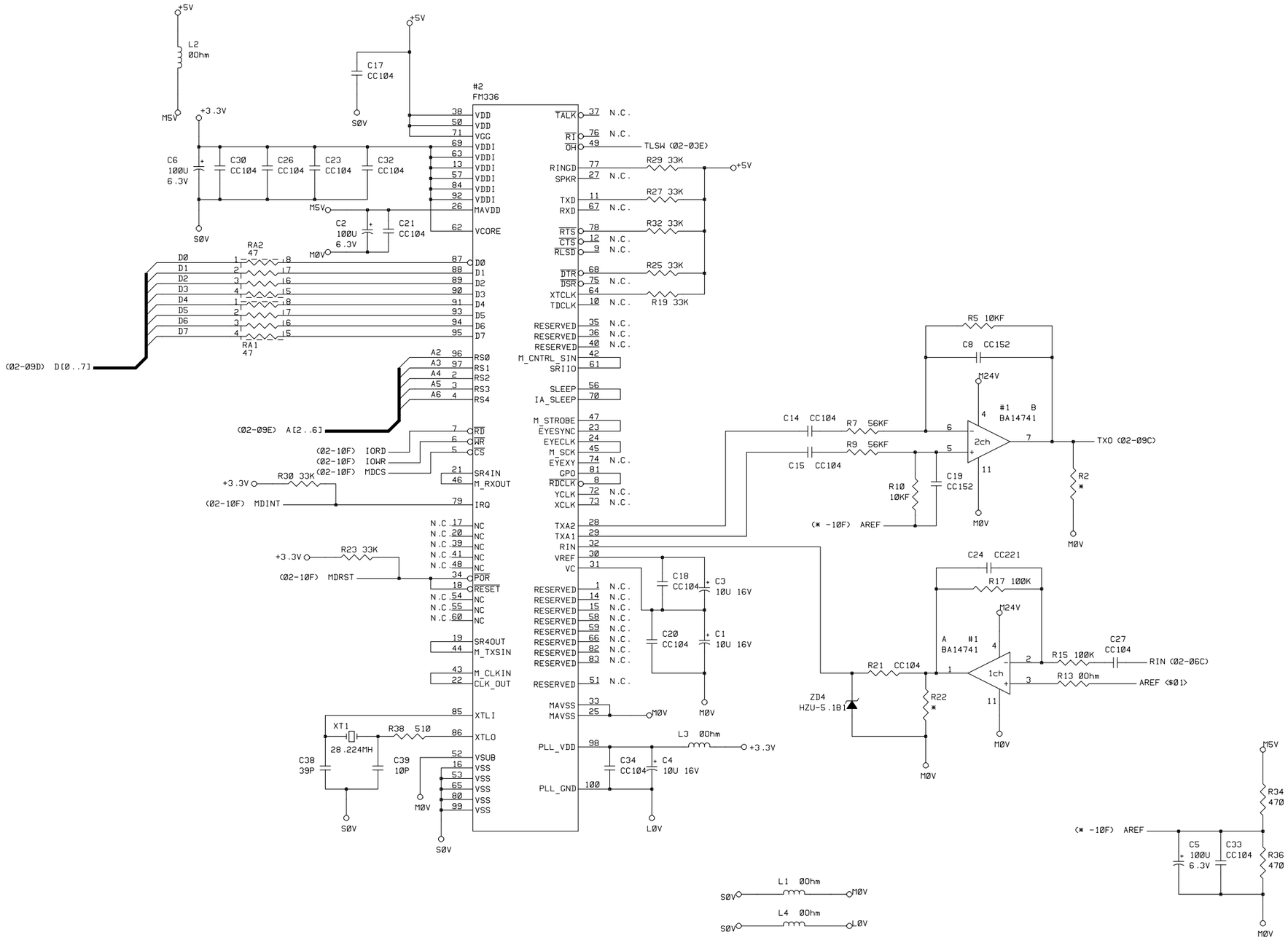
<01> (01-02D) (04-11B)
<02> (01-03D) (04-11B)
<03> (01-03D) (04-11B)
<04> (01-08C) (04-11B)
<05> (01-03C) (04-11A)
<06> (04-01C) (* -06E)
<07> (01-03D) (04-11C)
<08> (01-08C) (04-11A)

A	**Main PCB 6/7** (FAX5750/FAX8750P)

LG2515

	No.	US FAX5750 ASSY. 5 LG2332001	EUR FAX8750P ASSY. 25 LG2365001
USB	XT1	NOT ASSY	XTAL48.00MHZ
	C32	NOT ASSY	Cera C50 C100CH
	C33	0 Ω	Cera C50C 100CH
	R21	NOT ASSY	3.3KΩ
	R22	NOT ASSY	100Ω
LAN	R59	100Ω	100Ω
	R71	100Ω	100Ω
ROMCS2	R66	NOT ASSY	100Ω
DAST	R117	NOT ASSY	BLM11B102S
EAT	R116	100Ω	BLM11B102S
LANCS P.U.	R60	33KΩ	33KΩ
EEPROM(LAN)CLK P.U.	R77	33KΩ	33KΩ
SUPER CAP.	C12	5.5V/0.047F	5.5V/0.22F
FLASH	#1	16MbitFLASH	32MbitFLASH
	R12	NOT ASSY	3.3KΩ
	R250	NOT ASSY	0 Ω
EXROM	P18	NOT ASSY	52340-0501
	C1	10V/100μ	10V/100μ (7mm height)
EXRAM	P2	DHB-PB40	NOT ASSY
HOOK	P5	B2B-PH	NOT ASSY
	R227	100Ω	NOT ASSY
	R151	0 Ω	100Ω
USB	P17	NOT ASSY	USB-212-T
	Q3	NOT ASSY	KRA107S
	Q4	NOT ASSY	KRC107S
	R6	NOT ASSY	3.3KΩ
	R10	NOT ASSY	1.5KΩ
	R11	NOT ASSY	1.5KΩ
	R16	NOT ASSY	1.5KΩ
	R17	NOT ASSY	10KΩ
	R18	NOT ASSY	1MΩ
	C29	0 Ω	CC25C104
LAN	P1	DHB-PB34	DHB-PB34
	R5	100Ω	100Ω
NCU2	P15	NOT ASSY	B6B-PH
CI	R187	NOT ASSY	120KΩ
	R194	NOT ASSY	0 Ω

*: NOT ASSY
@: REFER TO LG2516001



(*01) (* -08E) (* -10G) (02-03F)

B	**Modem PCB 1/3** (FAX5750/FAX8750P)

LG2339

*: NOT ASSY
@: REFER TO LG2516001

NCU
@ P3 B12B-PH
+5V 10 P3 +5V
+24V 12 P3 +24V
CMLL 8 P3
PLS 3 P3
Q1 KRC107S
CMLH (* -10C)
24RET
R39 680
PLS (* -10B)

M24V
C7 *
M0V
N.C.
R3 0Ohm
Q2 *
+24V
(* -10B) OPON
M0V

+5V
R42 @ 22K
R41 1K
TELOFF 2 P3
TLOF (* -10B)
CI 4 P3
CI (* -10B)
C40 CC103
C37 CC103
S0V
C12 *
R4 @ 56K
M24V
C16 CC104 50V
M0V
C #1 BA14741
3ch
SL 9 P3
R6 8.2KF
C13 CC104
R1 10K
M24V
TELSL 5 P3
R28 @ 1.8KF
TLSL (* -08C)
R8 1K 1/10W
ZD1 HZU-8.2B2
M0V
M0V
M0V
R35 @ 1.8KF
+5V
R43 @ 4.7K
Q3 @ KRC107S
TLSW (01-06B)
M0V

ZD3 @ HZU-2.0B@ A
ZD2 HZU-2.0B A
C22 @ CC102
R11 @ 100KF
M24V
RL1 6 P3
RL1 (* -08C)
RL2 7 P3
RL2 (* -08C)
S0V 11 P3
S0V
D #1 BA14741
4ch
TELRL 1 P3
R18 @ 1.5K
R20 @ 200KF
C25 @ CC103
RIN (* -06C)
R16 @ 4.7K
R14 @ 8.2KF
Q4 @ 2SK208-Y
Q5 @ KRC107S
R40 @ 100K
MUTE (* -10B)
C35 @ CC104
M0V
M0V
M0V
R12 @ 8.2KF
(01-10F) AREF
R37 @ 10K
DAREC (* -10B)
C36 @ CC104
S0V

M5V
#3 74HD4053LV
C31 CC104
M0V
(<$02>) RIN
(* -10C) SP
R31 *
TEL (* -10A)
C28 CC103
M0V
R24 @ 3.3K
TXO (01-10D)
R33 75K
RING (* -10C)
R26 1.5K
C29 *
M0V

(01-02C) D[0..7]
(01-04D) A[2..6]

V34-C
P1 IMSA-9210B-13Z
(* -09C) TEL — P1 TEL
(* -03F) MUTE — P1 MUTE
(* -03C) TLOF — P1 TELOF
(* -03B) PLS — P1 PLS
(* -03C) CI — P1 CI
(* -05F) DAREC — P1 DAREC
(* -08C) RNG — P1 RNG
(* -05C) OPON — P1 OPON
(<$01>) CMLH — P1 CMLH
+24V — P1 +24V
C11 CC104 50V
24RET — P1 24RET
(* -06D) SP — P1 SP
(* -08D) RING — P1 RING

V34-D
D0 D1 D2 D3 D4 D5 D6 D7 — P2 D0 D1 D2 D3 D4 D5 D6 D7
N.C — P2 SCLKOUT
N.C — P2 A1
A2 A3 A4 A5 A6 — P2 A2 A3 A4 A5 A6
N.C — P2 A7
N.C — P2 A8
N.C — P2 A9
N.C — P2 A10
N.C — P2 A11
N.C — P2 A12
(01-04D) MDCS — P2 MDCS
(01-04D) IORD — P2 IORD
(01-04D) IOWR — P2 IOWE
(01-04D) MDINT — P2 MDINT
(01-04E) MDRST — P2 MDRST
+5V — P2 +5V
+3.3V — P2 +3.3V
C9 CC104
C10 CC104
S0V — P2 S0V S0V

P2 IMSA-9180B-30B

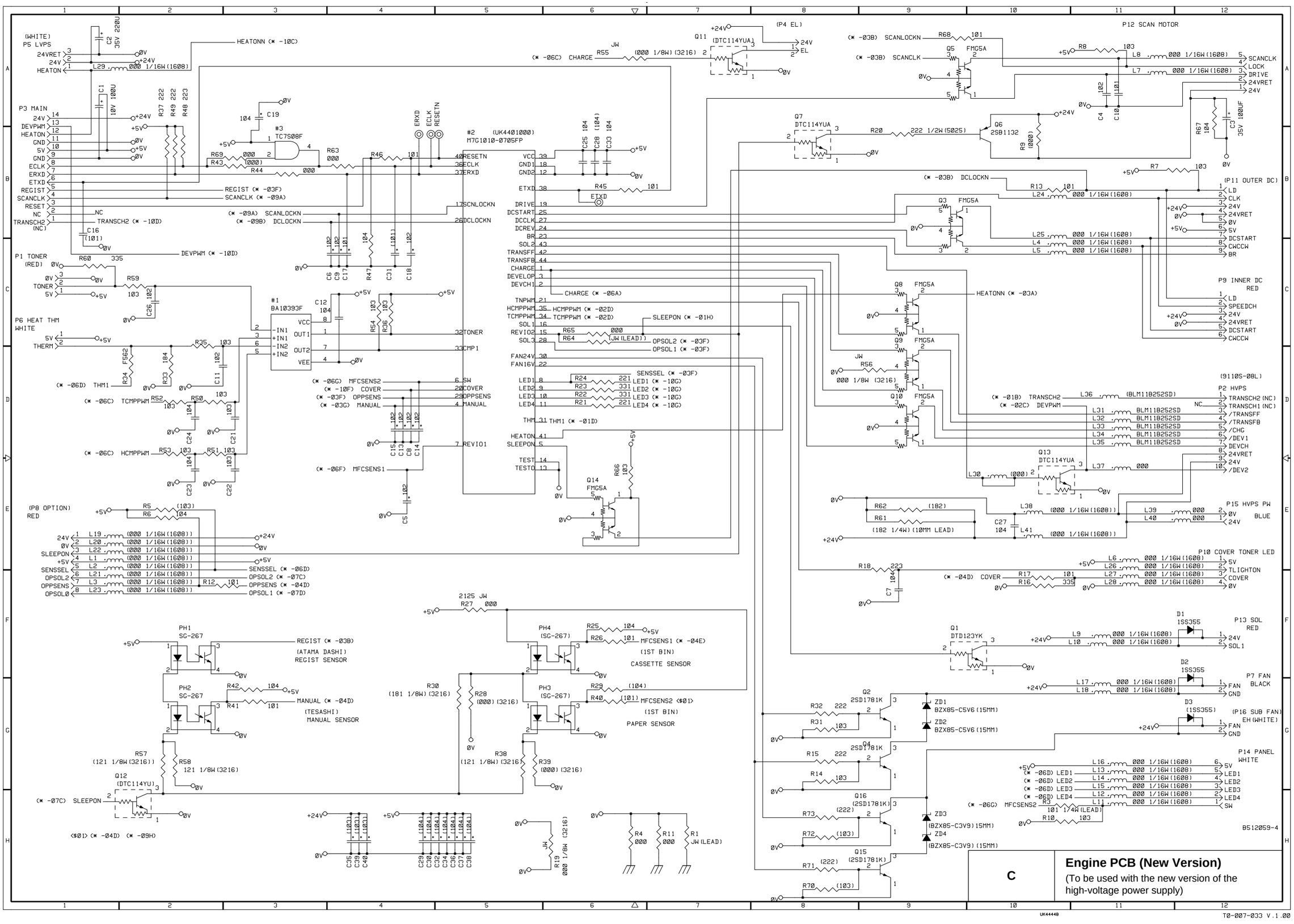
(<$01>) (* -04B) (* -08C)
(<$02>) (01-10E) (* -06E)

B	**Modem PCB 2/3** (FAX5750/FAX8750P)

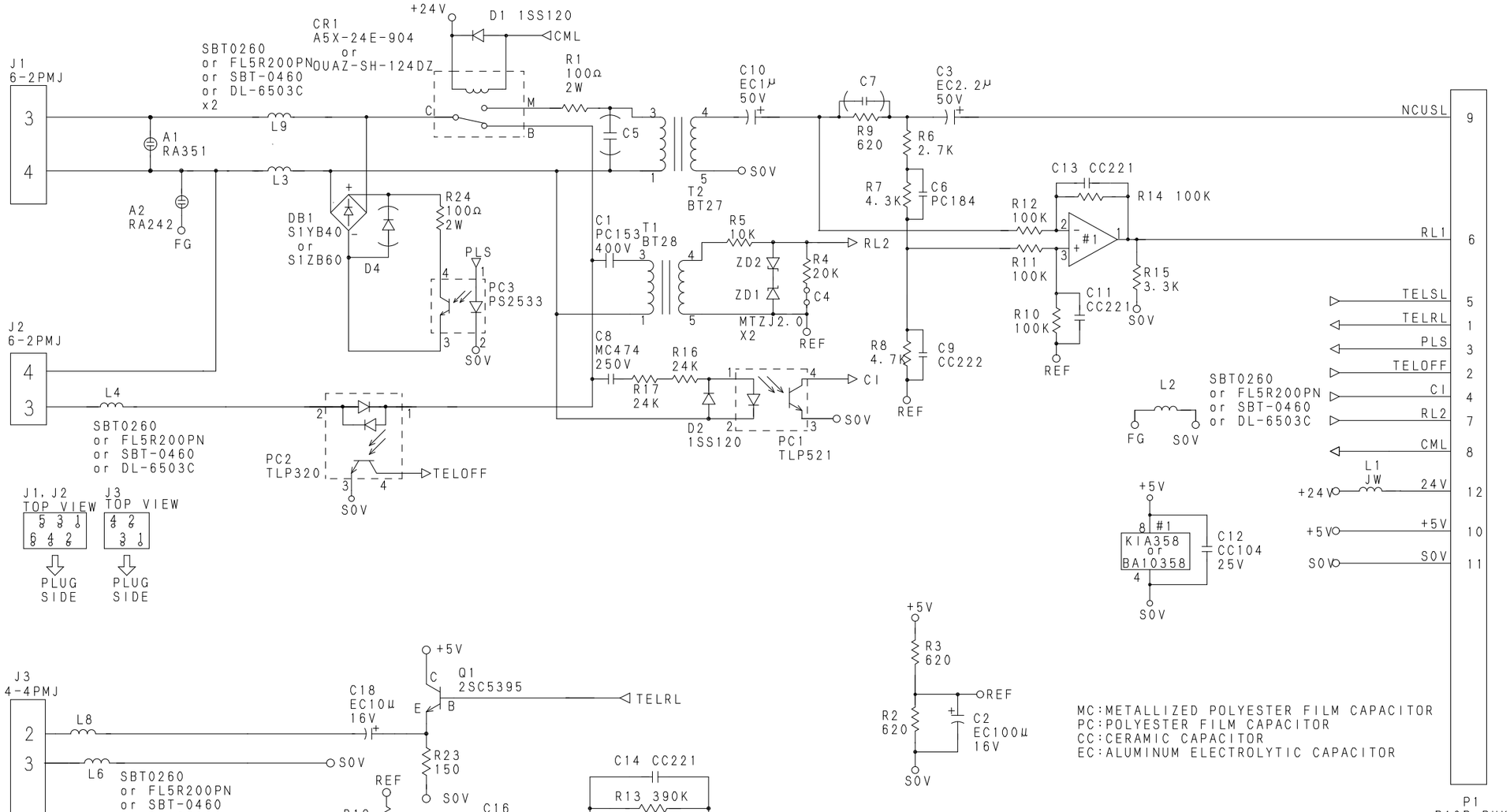
LG2340

	No.	US FAX5750 ASSY. 1 LG2334001	EUR FAX8750P ASSY. 21 LG2366001
NCU1	P3	B12B-PH	B11B-PH
CI	R42	22 KΩ	NOT ASSY
TXO	R24	3.3KΩ	3.3KΩ (F)
TXAMP	R4	56 KΩ	56KΩ (F)
TLSL	R28	1.8KΩ (F)	NOT ASSY
	R35	1.8KΩ (F)	NOT ASSY
	R43	4.7 KΩ	NOT ASSY
	Q3	KRC107S	NOT ASSY
RX. AMP	ZD2	ZDHZU-2.0B	NOT ASSY
	ZD3	ZDHZU-2.0B	NOT ASSY
	C22	CC50C102B	NOT ASSY
	R11	100KΩ (F)	0 Ω
	C25	CC50C103B	NOT ASSY
	R20	200KΩ (F)	NOT ASSY
	R18	1.5 KΩ	NOT ASSY
	R16	4.7 KΩ	NOT ASSY
	R14	8.2KΩ (F)	0 Ω
	R12	8.2KΩ (F)	NOT ASSY
	Q4	2SK208-Y	NOT ASSY
	R37	10 KΩ	NOT ASSY
	C36	CC25C104	NOT ASSY
	Q5	KRC107S	NOT ASSY
	R40	100 KΩ	NOT ASSY
	C35	CC25C104	NOT ASSY

C — Engine PCB (Old Version)


(WHITE)
P5 LVPS
24VRET
24V
HEATON
HEATONN (* -10C)
C2 220U 35V
L29 000 1/16W(1608)
C1 100U 10V
R37 222
R49 222
R48 223
P3 MAIN
24V
DEVPWM
HEATON
GND
5V
GND
ECLK
ERXD
ETXD
REGIST
SCANCLK
RESET
NC
TRANSCH2
(NC)
REGIST (* -03F)
SCANCLK (* -09A)
NC
TRANSCH2 (* -10D)
C16 (101)
DEVPWM (* -10D)
P1 TONER
(RED)
TONER
R60 335
R59 103
C26 102
#3 TC7S08F
C19 104
R63 000
R46 101
R69 000
R43 (000)
R44 000
ERXD
ECLK
RESETN
#2 (UK4401000)
M7G1010-0705FP
C25 104
C28 (104)
C33 104
R45 101
ETXD
C9 102
C17 102
C6 101
R47 104
C31 (101)
C18 102
17SCNLOCKN
26DCLOCKN
(* -09A) SCANLOCKN
(* -09B) DCLOCKN
#1 BA10393F
C12 104
R54 103
R36 103
32TONER
33CMP1
P6 HEAT THM
WHITE
THERM
R35 103
F562 R34
184 R33
102 C11
(* -06D) THM1
(* -06C) TCMPPWM
R52 103
R50 103
C24 104
C21 103
(* -06C) HCMPPWM
R53 103
R51 103
C23 104
C22 103
(* -06C) MFCSENS2
(* -10F) COVER
(* -03F) OPPSENS
(* -03G) MANUAL
6 SW
20COVER
29OPPSENS
4 MANUAL
C15 102
C13 102
C8 102
C14 102
7 REVIO1
(* -06F) MFCSENS1
C5 102
HCMPPWM (* -02D)
TCMPPWM (* -02D)
SLEEPON (* -01H)
R65 000
R64 (JW(LEAD))
OPSOL2 (* -03F)
OPSOL1 (* -03F)
CHARGE (* -06A)
SENSSEL (* -03F)
LED1 (* -10G)
LED2 (* -10G)
LED3 (* -10G)
LED4 (* -10G)
THM1 (* -01D)
HEATON
SLEEPON
TEST
TESTO
R66 103
Q14 FMG5A
JW
CHARGE (* -06C)
R55 (000 1/8W)(3216)
Q11 (DTC114YUA)
(P4 EL)
24V
EL
P12 SCAN MOTOR
(* -03B) SCANLOCKN
R68 101
Q5 FMG5A
(* -03B) SCANCLK
R8 103
L8 000 1/16W(1608)
L7 000 1/16W(1608)
SCANCLK
LOCK
DRIVE
24VRET
24V
C4 102
C10 101
Q7 DTC114YUA
R20 222 1/2W(5025)
Q6 2SB1132
R9 (000)
R67 104
C3 35V 100UF
R7 103
(* -03B) DCLOCKN
R13 101
L24 000 1/16W(1608)
(P11 OUTER DC)
LD
CLK
24V
24VRET
0V
5V
DCSTART
CWCCW
BR
Q3 FMG5A
L25 000 1/16W(1608)
L4 000 1/16W(1608)
L5 000 1/16W(1608)
P9 INNER DC
RED
LD
SPEEDCH
24V
24VRET
DCSTART
CWCCW
Q8 FMG5A
HEATONN (* -03A)
Q9 FMG5A
JW
R56
000 1/8W (3216)
Q10 FMG5A
(9110S-08L)
P2 HVPS
(* -01B) TRANSCH2
(* -02C) DEVPWM
L36 (BLM11B252SD)
NC
TRANSCH2 (NC)
TRANSCH1 (NC)
/TRANSFF
/TRANSFB
/CHG
/DEV1
DEVCH
24VRET
24V
/DEV2
L31 BLM11B252SD
L32 BLM11B252SD
L33 BLM11B252SD
L34 BLM11B252SD
L35 BLM11B252SD
Q13 DTC114YUA
L30 (000)
L37 000
R62 (182)
R61 (182 1/4W)(10MM LEAD)
C27 104
L38 (000 1/16W(1608))
L41 (000 1/16W(1608))
L39 000
L40 000
P15 HVPS PW
0V
24V
BLUE
P10 COVER TONER LED
R18 223
C7 104
(* -04D) COVER
R17 101
R16 335
L6 000 1/16W(1608)
L26 000 1/16W(1608)
L27 000 1/16W(1608)
L28 000 1/16W(1608)
5V
TLIGHTON
COVER
0V
Q1 DTD123YK
D1 1SS355
L9 000 1/16W(1608)
L10 000 1/16W(1608)
P13 SOL
RED
24V
SOL1
D2 1SS355
L17 000 1/16W(1608)
L18 000 1/16W(1608)
P7 FAN
BLACK
FAN
GND
D3 (1SS355)
(P16 SUB FAN)
EH(WHITE)
Q2 2SD1781K
R32 222
R31 103
ZD1 BZX85-C5V6(15MM)
ZD2 BZX85-C5V6(15MM)
Q4 2SD1781K
R15 222
R14 103
Q16 (2SD1781K)
R73 (222)
R72 (103)
ZD3 (BZX85-C3V9)15MM)
ZD4 (BZX85-C3V9)(15MM)
Q15 (2SD1781K)
R71 (222)
R70 (103)
P14 PANEL
WHITE
L16 000 1/16W(1608)
L13 000 1/16W(1608)
L14 000 1/16W(1608)
L15 000 1/16W(1608)
L12 000 1/16W(1608)
L11 000 1/16W(1608)
5V
LED1
LED2
LED3
LED4
SW
(* -06D) LED1
(* -06D) LED2
(* -06D) LED3
(* -06D) LED4
(* -06G) MFCSENS2
R3 101 1/4W(LEAD)
R10 103
B512059-4
(P8 OPTION)
RED
R5 (103)
R6 104
L19 (000 1/16W(1608))
L20 (000 1/16W(1608))
L22 (000 1/16W(1608))
L1 (000 1/16W(1608))
L2 (000 1/16W(1608))
L21 (000 1/16W(1608))
L3 (000 1/16W(1608))
L23 (000 1/16W(1608))
R12 101
24V
0V
SLEEPON
+5V
SENSSEL
OPSOL2
OPPSENS
OPSOL0
SENSSEL (* -06D)
OPSOL2 (* -07C)
OPPSENS (* -04D)
OPSOL1 (* -07D)
2125 JW
R27 000
PH1 SC-267
REGIST (* -03B)
(ATAMA DASHI)
REGIST SENSOR
PH2 SC-267
R42 104
R41 101
MANUAL (* -04D)
(TESASHI)
MANUAL SENSOR
R57 (121 1/8W(3216))
R58 121 1/8W(3216)
Q12 (DTC114YU)
(* -07C) SLEEPON
<$01> (* -04D) (* -09H)
PH4 (SG-267)
R25 104
R26 101
MFCSENS1 (* -04E)
(1ST BIN)
CASSETTE SENSOR
R30 (181 1/8W)(3216)
R28 (000)(3216)
PH3 (SG-267)
R29 (104)
R40 (101)
MFCSENS2 <$01>
(1ST BIN)
PAPER SENSOR
R38 (121 1/8W)(3216)
R39 (000)(3216)
C35 103
C39 103
C40 103
C29 104
C30 104
C32 104
C34 104
C36 104
C37 104
C38 104
R19 000 1/8W (3216)
R4 000
R11 000
R1 JW (LEAD)
C
Engine PCB (New Version)
(To be used with the new version of the high-voltage power supply)
UK4444B
T0-007-033 V.1.00

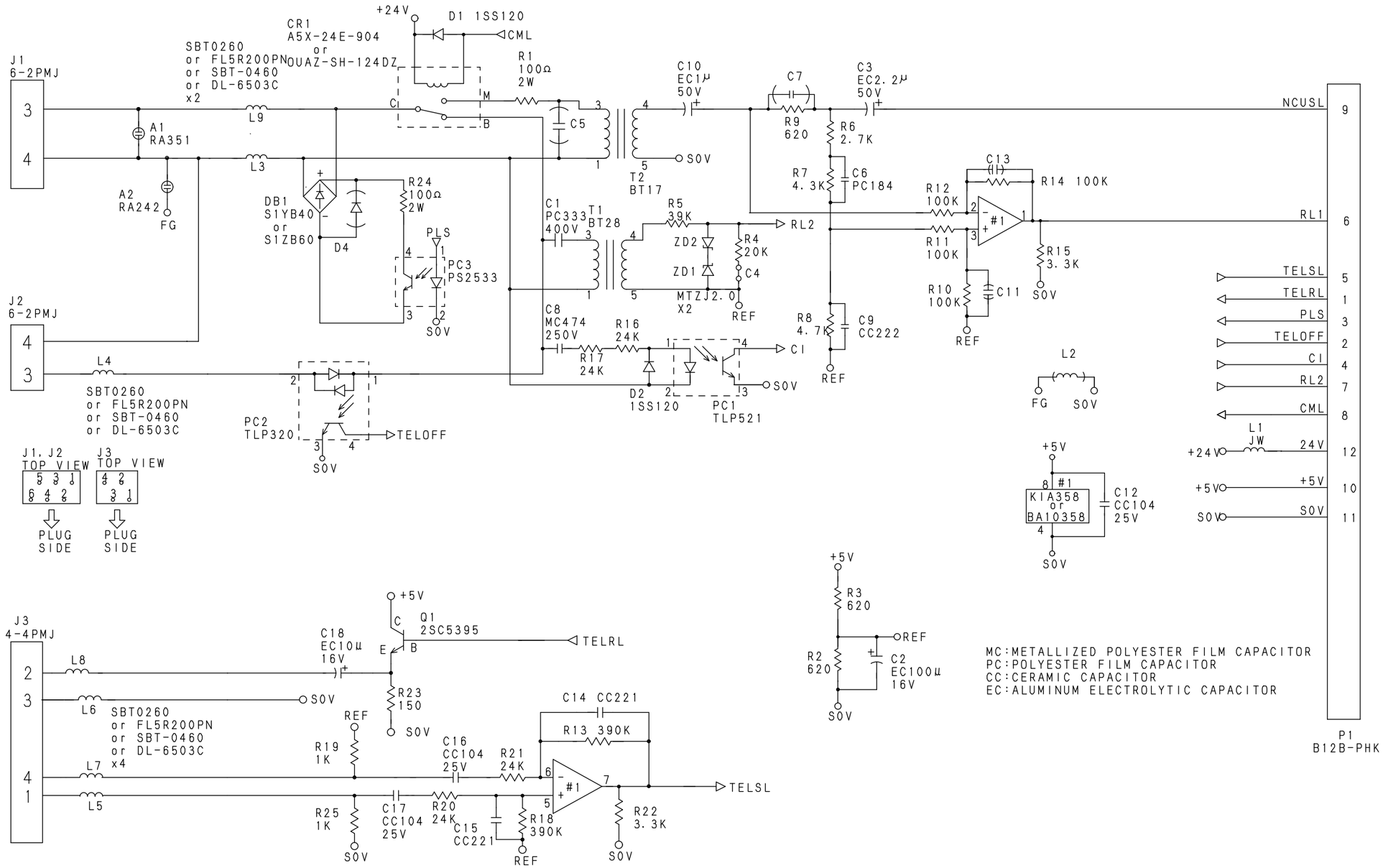
1. 指示ナキ抵抗ノ消費電力ハ1／4Wトスル。
1. UNLESS OTHERWISE SPECIFIED, POWER CONSUMPTION OF RESISTORS IS 1/4W.
2. 指示ナキコンデ゛ンサノ耐圧ハ25V又ハ50Vトスル。
2. UNLESS OTHERWISE SPECIFIED, THE VOLTAGE RESISTANCE OF CAPACITORS IS 25V OR 50V.
3. ( ) 内ノ部品ハ未実装トスル。
3. COMPONENTS IN PARENTHESIS NOT TO BE MOUNTED.



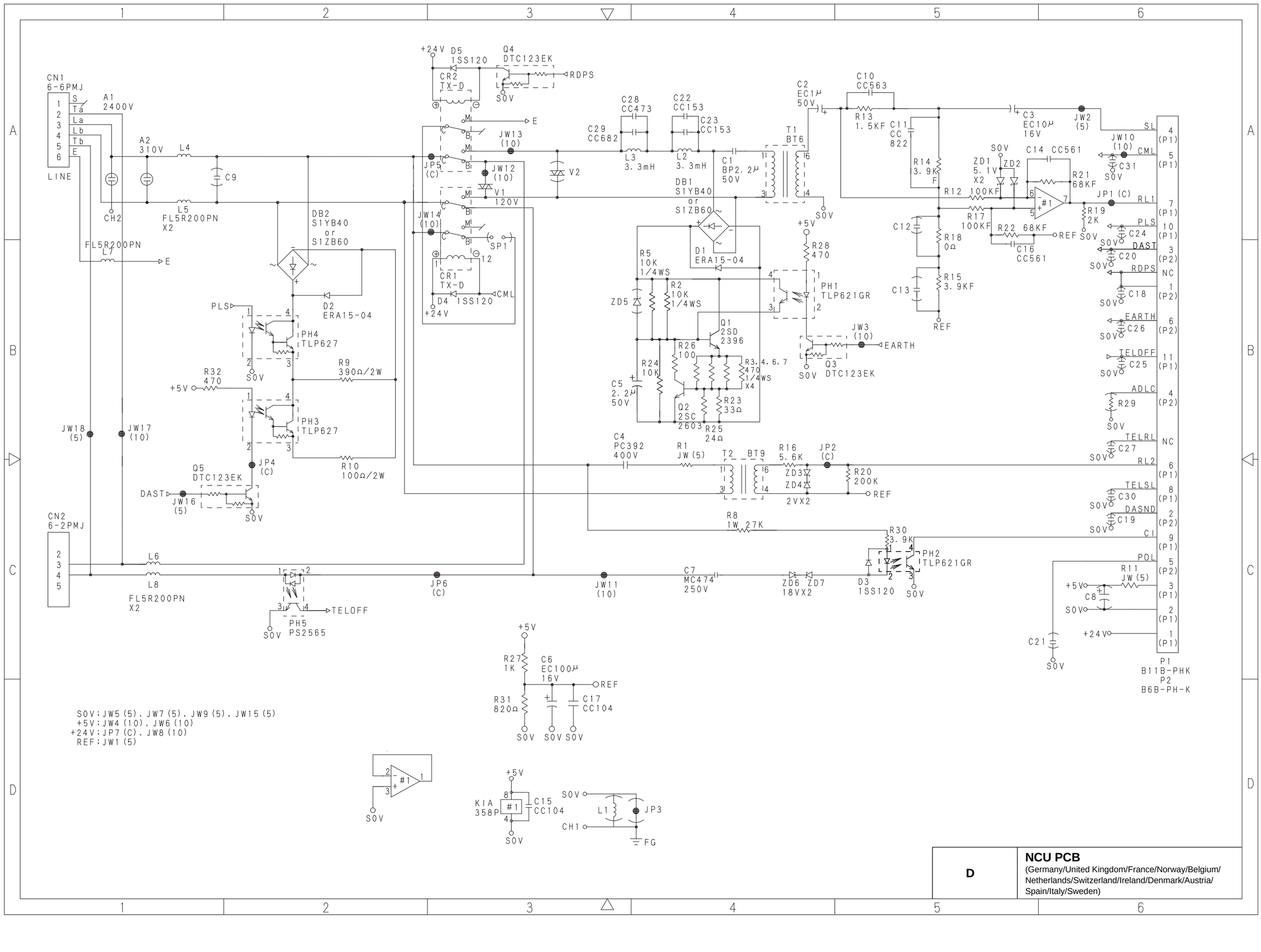
MC:METALLIZED POLYESTER FILM CAPACITOR
PC:POLYESTER FILM CAPACITOR
CC:CERAMIC CAPACITOR
EC:ALUMINUM ELECTROLYTIC CAPACITOR

D	**NCU PCB** (FAX4750/MFC8300/8600/8700, U.S.A./Canada)

1. 指示ナキ抵抗ノ消費電力ハ1／4Wトスル。
1. UNLESS OTHERWISE SPECIFIED, POWER CONSUMPTION OF RESISTORS IS 1/4W.
2. 指示ナキコンデンサノ耐圧ハ25V又ハ50Vトスル。
2. UNLESS OTHERWISE SPECIFIED, THE VOLTAGE RESISTANCE OF CAPACITORS IS 25V OR 50V.
3. ( ) 内ノ部品ハ未実装トスル。
3. COMPONENTS IN PARENTHESIS NOT TO BE MOUNTED.



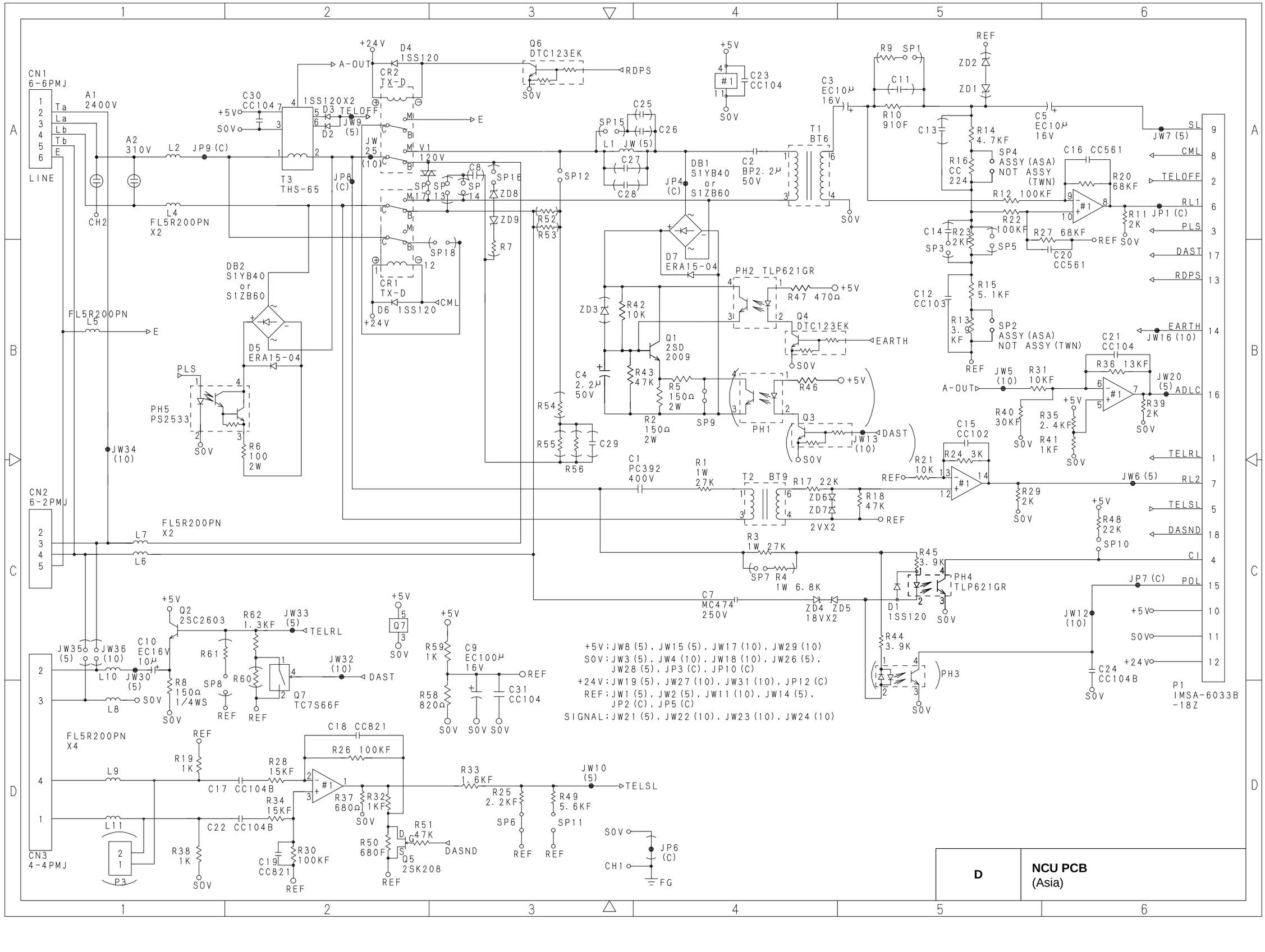
D	**NCU PCB** (FAX5750, U.S.A./Canada)



D	**NCU PCB** (Germany/United Kingdom/France/Norway/Belgium/ Netherlands/Switzerland/Ireland/Denmark/Austria/ Spain/Italy/Sweden)

+5V：JW8 (5), JW15 (5), JW17 (10), JW29 (10)
S0V：JW3 (5), JW4 (10), JW18 (10), JW26 (5), JW28 (5), JP3 (C), JP10 (C)
+24V：JW19 (5), JW27 (10), JW31 (10), JP12 (C)
REF：JW1 (5), JW2 (5), JW11 (10), JW14 (5), JP2 (C), JP5 (C)
SIGNAL：JW21 (5), JW22 (10), JW23 (10), JW24 (10)

D	**NCU PCB** (Australia/New Zealand)


CN1 6-6PMJ
LINE
Ta
La
Lb
Tb
E
A1 2400V
A2 310V
CH2
L2
JP9(C)
T3 THS-65
L4 FL5R200PN X2
JP8 (C)
+24V
D4 1SS120
CR2 TX-D
A-OUT
C30 CC104
1SS120X2
D3 TELOFF
D2
JW9 (5)
+5V
S0V
E
JW 25 (10)
V1 120V
SP12
SP15
C25
C26
L1 JW(5)
C27
C28
Q6 DTC123EK
RDPS
S0V
+5V
#1
C23 CC104
S0V
C3 EC10μ 16V
T1 BT6
DB1 S1YB40 or S1ZB60
C2 BP2.2μ 50V
JP4 (C)
S0V
R9 SP1
C11
R10 910F
REF
ZD2
ZD1
C5 EC10μ 16V
C13
R14 4.7KF
SP4 ASSY(ASA) NOT ASSY (TWN)
C16 CC561
R16 CC 224
R20 68KF
R12 100KF
R22 100KF
R27 68KF
C20 CC561
REF S0V
SL
JW7 (5)
CML
TELOFF
RL1
R11 2K
JP1 (C)
PLS
DAST
RDPS
C14
R23 2KF
SP3
SP5
C12 CC103
R15 5.1KF
R13 3.9KF
SP2 ASSY(ASA) NOT ASSY (TWN)
REF
EARTH
JW16 (10)
C21 CC104
R36 13KF
JW5 (10)
R31 10KF
A-OUT
JW20 (5)
ADLC
R39 2K
R40 30KF
R35 2.4KF
R41 1KF
+5V
S0V
C15 CC102
R24 3K
TELRL
JW6 (5)
RL2
R29 2K
TELSL
DASND
CI
JP7 (C)
POL
+5V
S0V
+24V
JW12 (10)
C24 CC104B
P1 IMSA-6033B -18Z
R48 22K
SP10
R21 10K
REF
R18 47K
ZD6
ZD7
2VX2
T2 BT9
R17 22K
R3 1W 27K
SP7 R4 1W 6.8K
R45 3.9K
PH4 TLP621GR
D1 1SS120
R44 3.9K
PH3
C7 MC474 250V
ZD4 ZD5 18VX2
C1 PC392 400V
R1 1W 27K
DB2 S1YB40 or S1ZB60
D5 ERA15-04
D7 ERA15-04
FL5R200PN L5
PLS
PH5 PS2533
R6 100 2W
JW34 (10)
CR1 TX-D
D6 1SS120
CML
SP18
SP16
ZD8
ZD9
R7
R52
R53
R54
R55
R56
C29
SP9
R2 150Ω 2W
R5 150Ω 2W
C4 2.2μ 50V
ZD3
R42 10K
Q1 2SD 2009
R43 47K
PH2 TLP621GR
R47 470Ω
Q4 DTC123EK
EARTH
PH1
R46
Q3
JW13 (10)
DAST
SP8
SP13
SP14
C8
CN2 6-2PMJ
FL5R200PN X2
L7
L6
CN3 4-4PMJ
FL5R200PN X4
L9
L11
P3
JW35 (5)
JW36 (10)
L10
JW30 (5)
L8
C10 EC16V 10μ
R8 150Ω 1/4WS
SP8
REF
R61
R60
R62 1.3KF
JW33 (5)
TELRL
Q2 2SC2603
Q7 TC7S66F
JW32 (10)
DAST
Q7
R59 1K
R58 820Ω
C9 EC100μ 16V
C31 CC104
R19 1K
C17 CC104B
R28 15KF
C18 CC821
R26 100KF
R33 1.6KF
JW10 (5)
TELSL
R37 680Ω
R32 1KF
R34 15KF
C22 CC104B
R38 1K
C19 CC821
R30 100KF
R50 680F
R51 47K
Q5 2SK208
DASND
R25 2.2KF
SP6
R49 5.6KF
SP11
JP6 (C)
CH1
FG
+5V:JW8(5), JW15(5), JW17(10), JW29(10)
S0V:JW3(5), JW4(10), JW18(10), JW26(5), JW28(5), JP3(C), JP10(C)
+24V:JW19(5), JW27(10), JW31(10), JP12(C)
REF:JW1(5), JW2(5), JW11(10), JW14(5), JP2(C), JP5(C)
SIGNAL:JW21(5), JW22(10), JW23(10), JW24(10)
D
NCU PCB
(Asia)

1. ( ) 内ノ部品ハ未実装トスル。
1. COMPONENTS IN PARENTHESIS NOT TO BE MOUNTED.

+5V
R24 100K
C24 CC104
SGND
#1
LPD65612GB
RST
KI0
KI1
KI2
KI3
KI4
KI5
KI6
KI7
PIN0
PIN1
SDIN
SDOUT
PCLK
TSTH
VDD
GND
GND
LCD0
LCD1
LCD2
LCD3
LCD4
LCD5
LCD6
LCD7
RS
RW
E
KO0
KO1
KO2
KO3
KO4
KO5
KO6
KO7
PO6
PO5
PO4
PO3
PO2
PO1
PO0

P1
52089-1620
FPC
C3 C5 C8 C9 C4 C6 C10 C7
R10 47K R12 47K R13 47K R15 47K R17 47K R16 47K R14 47K R11 47K

P3
53025-0610
P4
53025-0810
C26
C1 CC104
R22 100
C23 CC101
3C FSEN
3B FSEN
R20 1K
R19 100
C20 CC101
C19 CC101

P5
S2B-PH-K
MIC

C25 CC104
+5D
VSS
VDD
VO
RS
R/W
E
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
P2
52089-1420
COG
P1
52089-1620
FPC
C18 C16 C14 C12 C17 C15 C13 C11

TP2
テープセン3P
CC102Bx8
LED6 SLR-34MG80F R1 620
LED7 SLR-34MG80F R2 620
LED3 SLR-34MG80F R5 620
LED1 SLR-34MG80F R3 620
LED4 SLR-34MG80F R6 620
LED2 SLR-34MG80F R4 620
LED5 SLR-342VR R18 620

R21 1/8W 0Ω
C21 CC475
C2 CC104
R7 240
RSEN
PH1 SG-267 (REAR)
R9 100K
R8 240
PH2 SG-267 (FRONT)
TP1
テープセン3P

E	Control Panel PCB 1/2

ZL PANEL KEY MATRIX REFERENCE TABLE 1

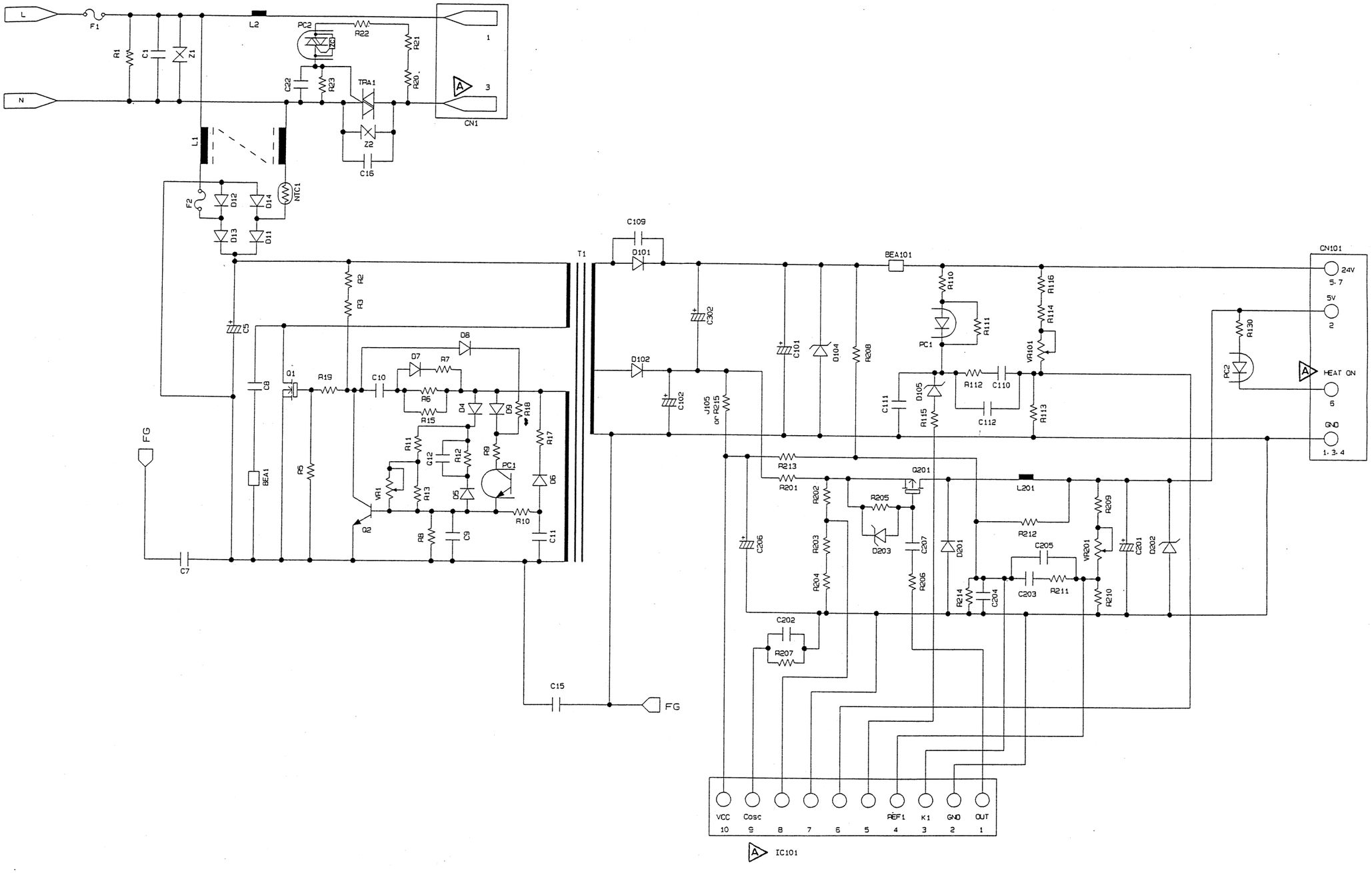
KEY NO.	KEY NAME	KEY CODE
1/63		25
2/62		2D
3/64		2E
4		2C
5	1TOUCH-01/17	0D
6	1TOUCH-02/18	05
7	1TOUCH-03/19	26
8	1TOUCH-04/20	24
9	1TOUCH-05/21	35
10	1TOUCH-06/22	0E
11	1TOUCH-07/23	06
12	1TOUCH-08/24	04
13	1TOUCH-09/25	15
14	1TOUCH-10/26	36
15	1TOUCH-11/27	16
16	1TOUCH-12/28	34
17		0C
18	1TOUCH-13/29	1D
19	1TOUCH-14/30	1E
20	1TOUCH-15/31	1C
21	1TOUCH-16/32	14
22	Shift	3C
23	Function	2F
24	←	27
25	SET	22
26	→	23
27	Clear	2B
28	Hook	07
29	10KEY-1	37
30	10KEY-2	2A
31	10KEY-3	33
32	Hold	0F
33	10KEY-4	02
34	10KEY-5	32
35	10KEY-6	03
36	Redial/Pause	17

KEY NO.	KEY NAME	KEY CODE
37	10KEY-7	0A
38	10KEY-8	12
39	10KEY-9	13
40	Volume High	0B
41	Speed Dial	1F
42	10KEY-*	1A
43	10KEY-0	3A
44	10KEY-#	1B
45	Volume Low	3B
46	Tel-index	29
47	Resolution	21
48	Mode	28
49	Help/Broadcast	30
50	On/Off Line	19
51	FF/Cont	11
52	Print Priority	18
53	Test/Reset	20
54	Enlarge	01
55	Reduce	31
56	Copy	38
57	Sort	39
58	Photo	09
59	Stop	10
60	Start	08
61		3D

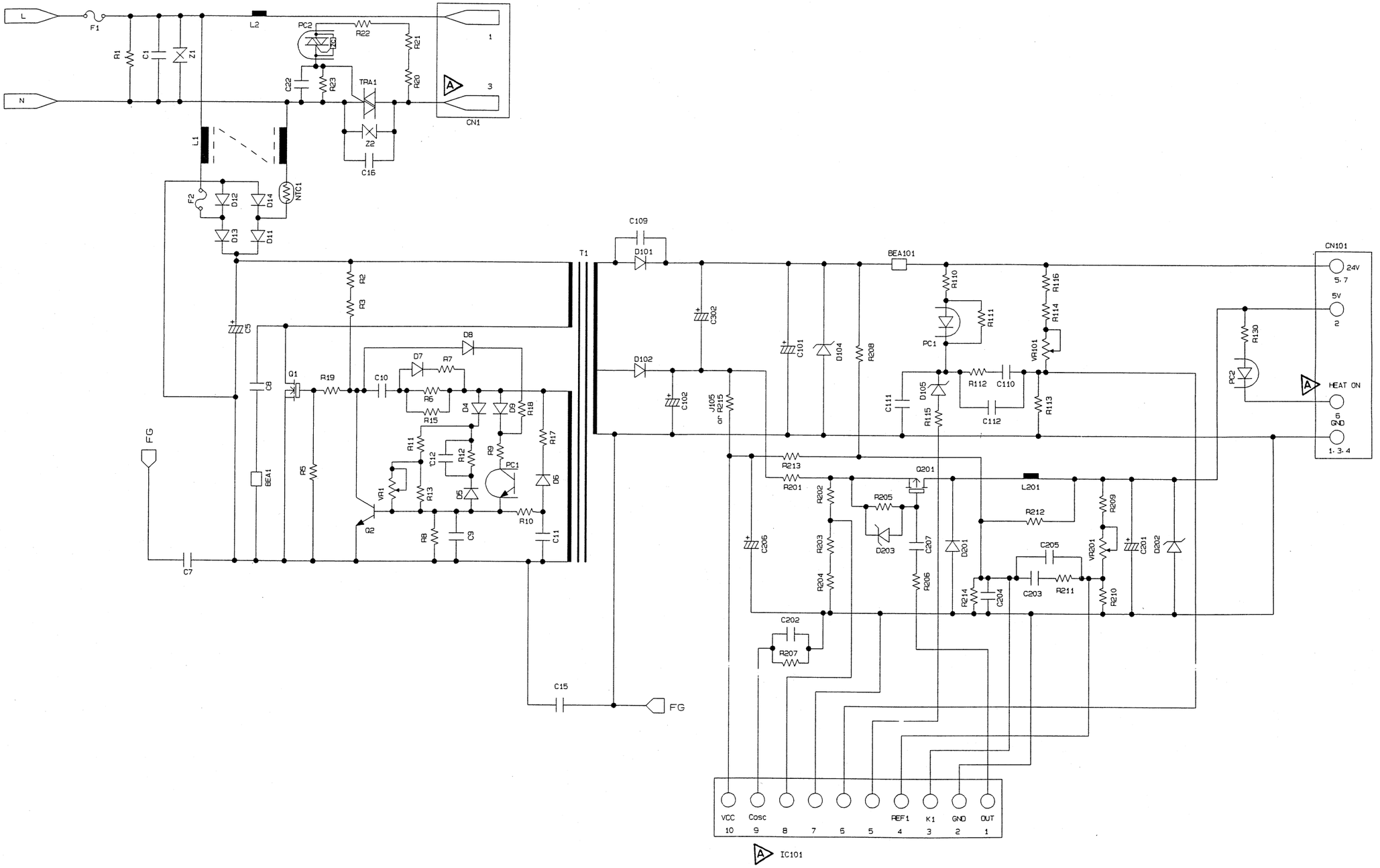
ZL PANEL KEY MATRIX REFERENCE TABLE 2

	KO0 P1-1P	KO1 P1-3P	KO2 P1-5P	KO3 P1-7P	KO4 P1-9P	KO5 P1-11P	KO6 P1-13P	KO7 P1-15P
KI0 P1-16P	54	58	51	50	47	46	55	57
KI1 P1-12P	33	37	38	42	25	30	34	43
KI2 P1-10P	35	40	39	44	26	27	31	45
KI3 P1-6P	12	17	21	20	8	4	16	22
KI4 P1-2P	6	5	13	18	1/63	2/62	9	61
KI5 P1-4P	11	10	15	19	7	3/64	14	
KI6 P1-8P	28	32	36	41	24	23	29	
KI7 P1-14P	60	59	52	53	48	49	56	

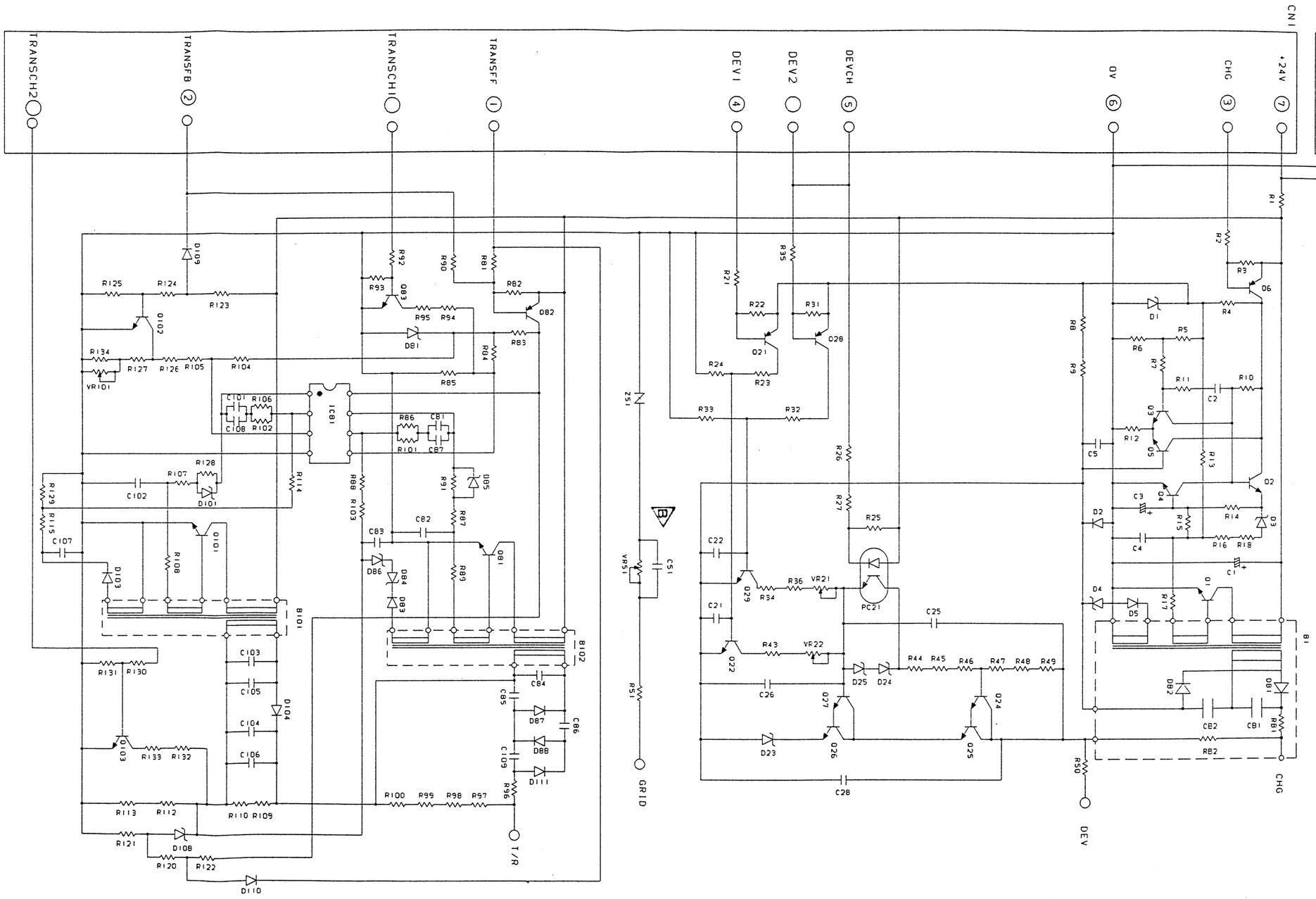
E	Control Panel PCB 2/2



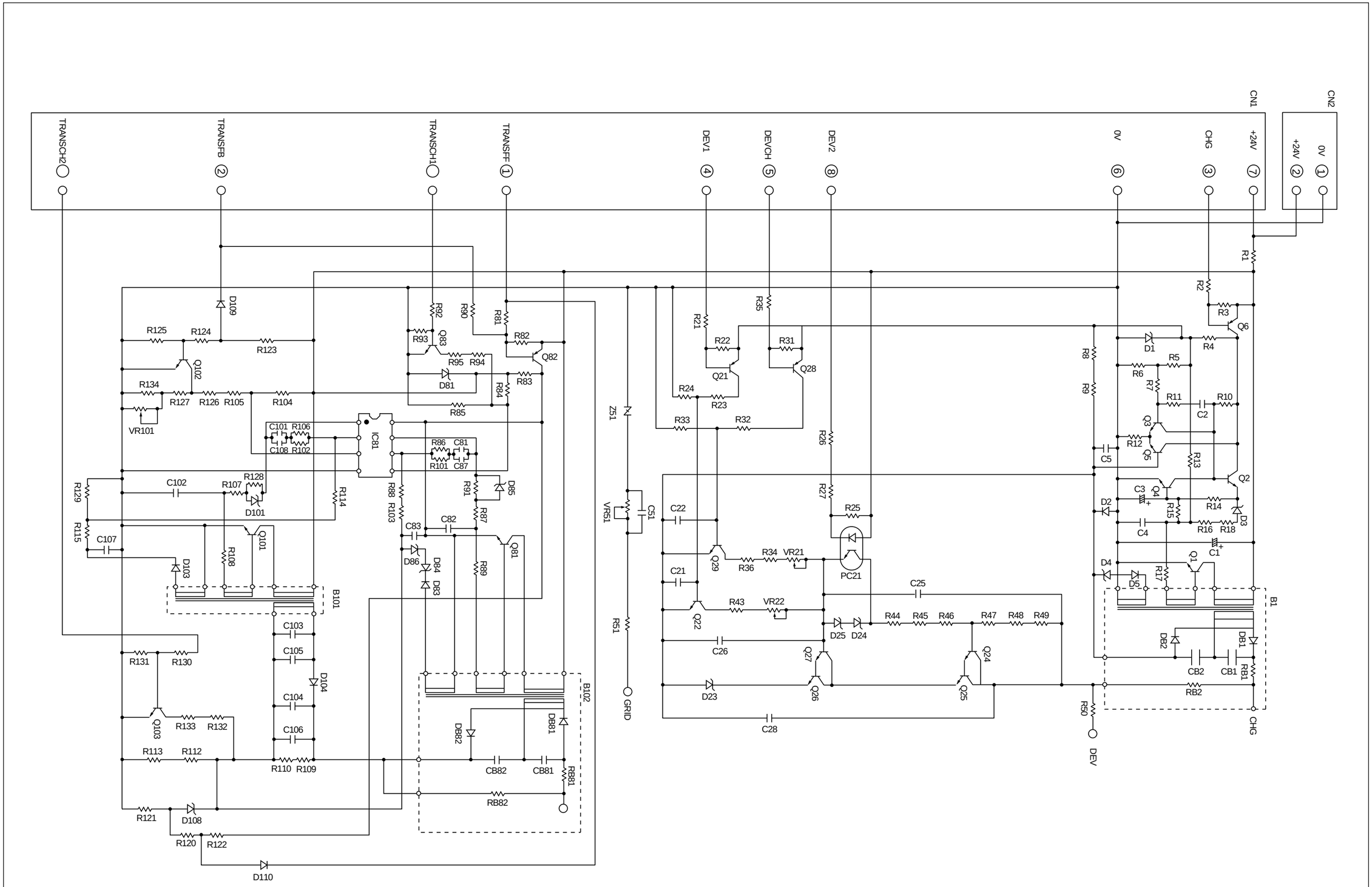
F	**Power Supply PCB (100-120V)** Low-voltage power supply



F	**Power Supply PCB (200-240V)** Low-voltage power supply



F	**Power Supply PCB** High-voltage power supply (Old Version)



F	**Power Supply PCB** High-voltage power supply (New Version)

Jan. '00
SM8X5401
Printed in Japan

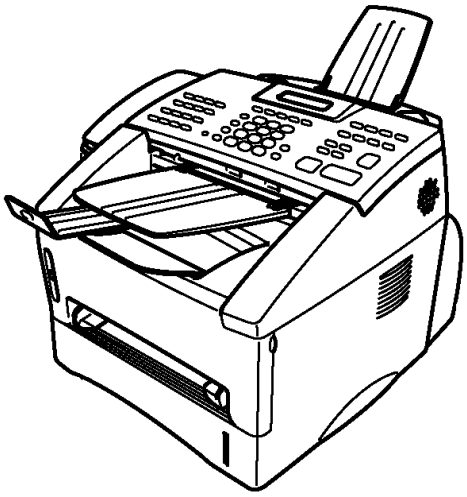
brother

FACSIMILE EQUIPMENT

PARTS REFERENCE LIST

MODEL: FAX8350P / 8750P
MFC9650

(For Germany / United Kingdom / France / Norway / Belgium / Netherlands / Switzerland / Denmark / Spain / Austria/ Italy / Sweden / Euro Generic)



© Copyright Brother 1999
All rights reserved
No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.
Specifications are subject to change without prior notice.

NOTES FOR USING THIS PARTS REFERENCE LIST

1. In the case of ordering parts, it needs mentioning the following items:
   (1) Code
   (2) Q' ty
   (3) Description

   Note: No orders without Parts Code or Tool No. can be accepted.

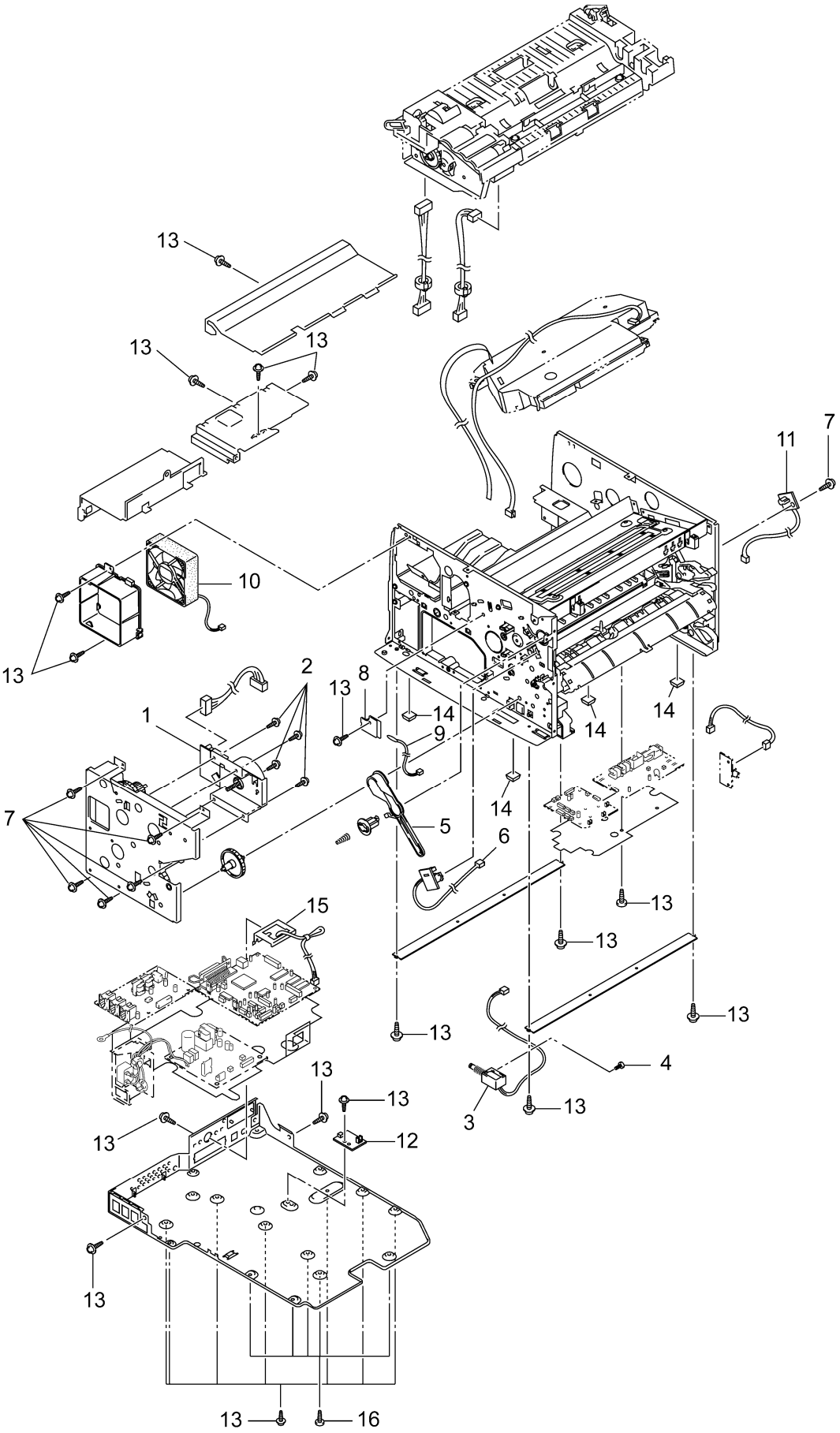
[Example]

REF.NO.	(1) CODE	(2) Q' TY	(3) DESCRIPTION	REMARKS

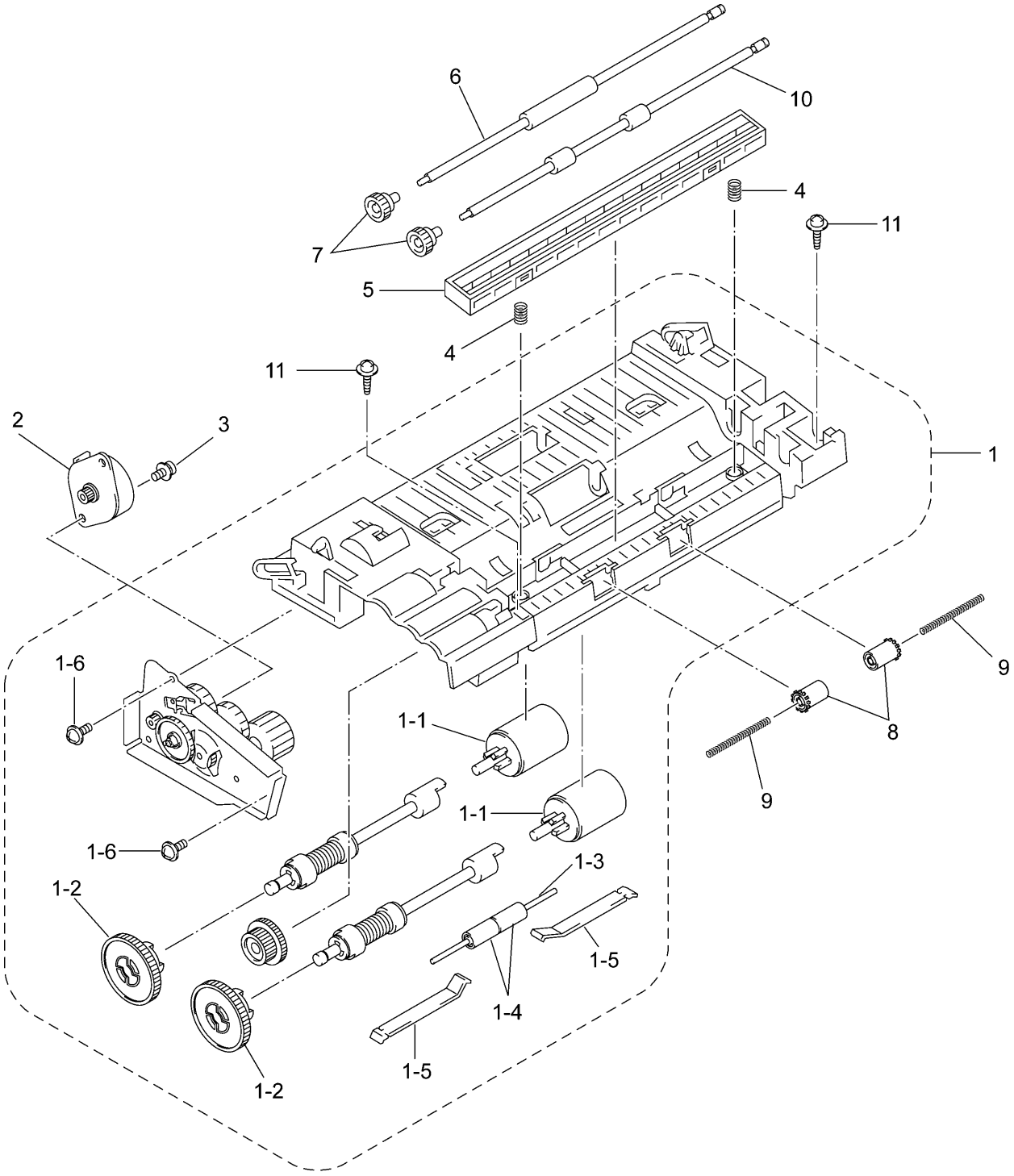
2. Parts change will be informed by the technical information.

COUNTRIES

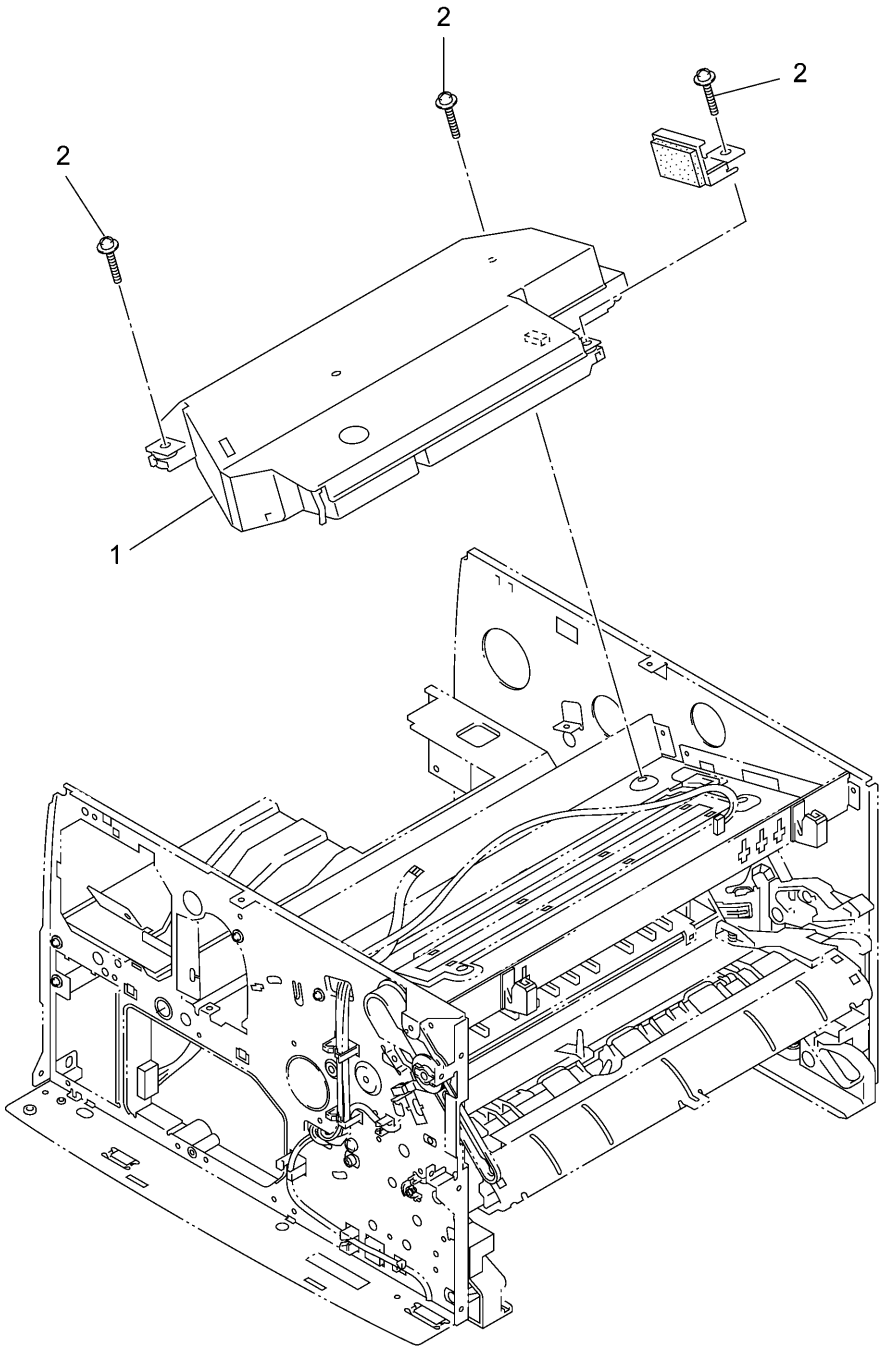
GERMANY ----- GER
UNITED KINGDOM ----- UK
FRANCE ----- FRA
NORWAY ----- NOR
BELGIUM ----- BEL
NETHERLANDS ----- NLD
SWITZERLAND ----- CHE
IRELAND -----IRE
DENMARK ----- DEN
AUSTRIA ----- AUS
SPAIN ----- SPA
ITALY ----- ITA
SWEDEN ----- SWE
EURO GENERIC ----- GNR


13
13
13
13
10
13
2
1
7
13
8
14
9
14
14
14
11
7
5
6
14
13
13
13
15
13
4
3
13
13
13
12
13
13
13
16

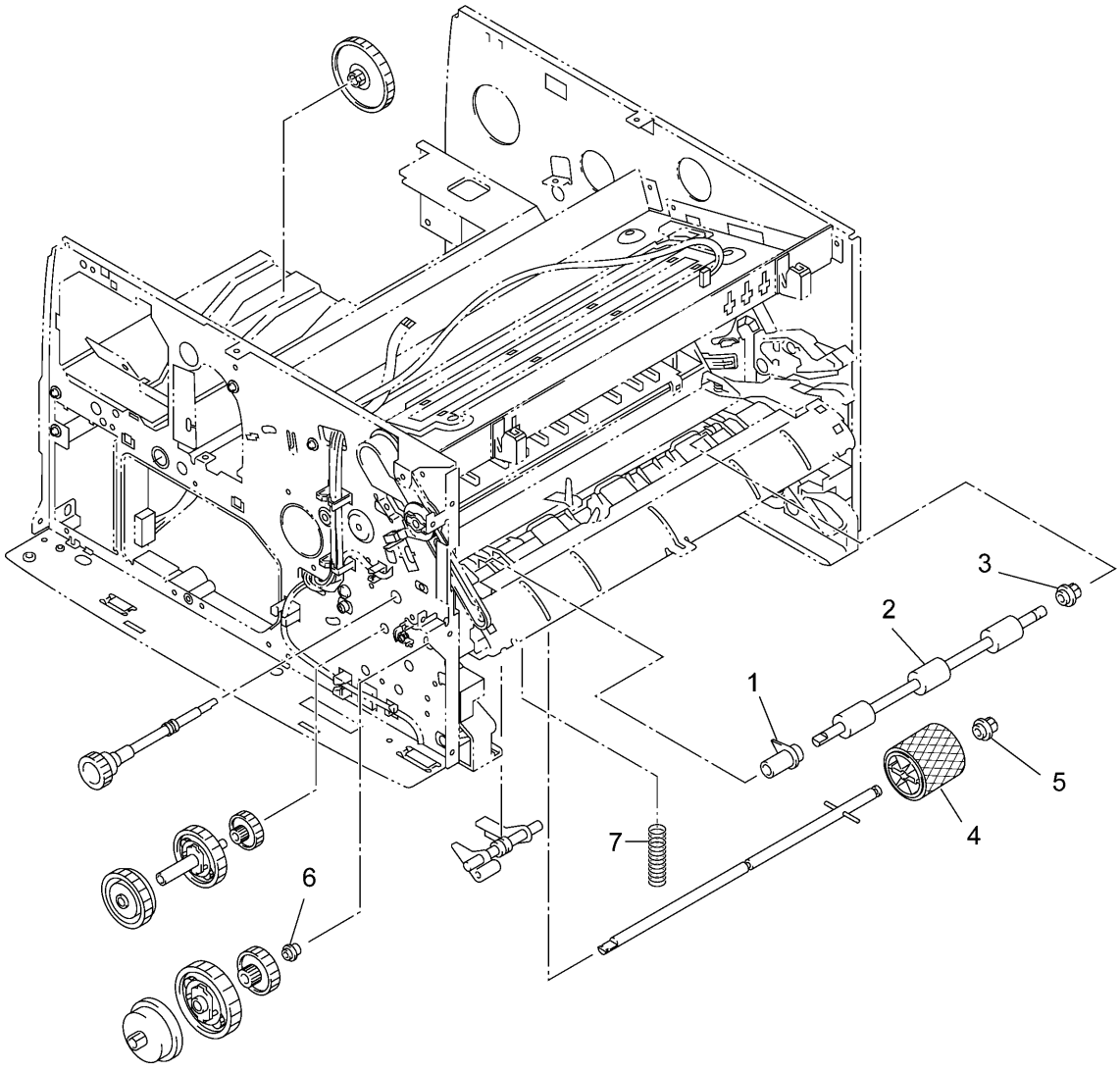
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	UL9311001	1	MAIN MOTOR ASSY	
2	087320616	4	TAPTITE, CUP S M3X6	
3	LJ4069001	1	SOLENOID ASSY	
4	000300415	1	SCREW, BIND M3X4	
5	UL8984001	1	FRONT COVER LINK	
6	UL9099001	1	TONER SENSOR (LED) PCB	
7	087320616	6	TAPTITE, CUP S M3X6	
8	LE1166001	1	THERMISTOR FILM	
9	LE1284001	1	IN CASING TEMPERATURE THERMISTOR	
10	LJ4015001	1	FAN	
11	UL9104001	1	TONER SENSOR (RECEIVER) PCB	
12	UG6217001	1	PAPER EJECTION SENSOR PCB	
13	087320616	23	TAPTITE, CUP S M3X6	
14	UL8507001	4	RUBBER FOOT	
15	LJ8031001	1	2ND CASSETTE RELAY PCB	
16	085411215	5	SCREW, BIND B TITE M4X12	


6
10
4
11
7
5
4
11
2
3
1
9
1-6
1-1
8
9
1-1
1-6
1-3
1-2
1-5
1-4
1-5
1-2

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE1164001	1	SCANNER FRAME ASSY	
1-1	LE1072001	2	DOCUMENT SEPARATION ROLLER	
1-2	UL5632000	2	DOCUMENT SEPARATION ROLLER GEAR	
1-3	UF4369000	1	PRESSURE ROLLER SHAFT	
1-4	UF9009001	2	PRESSER ROLLER	
1-5	UU7032001	2	PRESSER ROLLER LEAF SPRING	
1-6	087310815	2	TAPTITE, CUP B M3X8	
2	UU2027001	1	SCANNER MOTOR	
3	0A4300605	1	SCREW, PAN (WASHER) M3X6DA	
4	UU2028001	2	CIS SPRING	
5	LE1160001	1	CIS UNIT SUPPLY ASSY	
6	UU2029001	1	DOCUMENT FEED ROLLER	
7	LE1196001	2	DOCUMENT FEED ROLLER ROLLER GEAR	
8	UL6244002	2	PINCH ROLLER	
9	UU2009001	2	PINCH ROLLER SPRING	
10	UU2031001	1	DOCUMENT EJECTION ROLLER	
11	087311016	2	TAPTITE, CUP B M3X10	

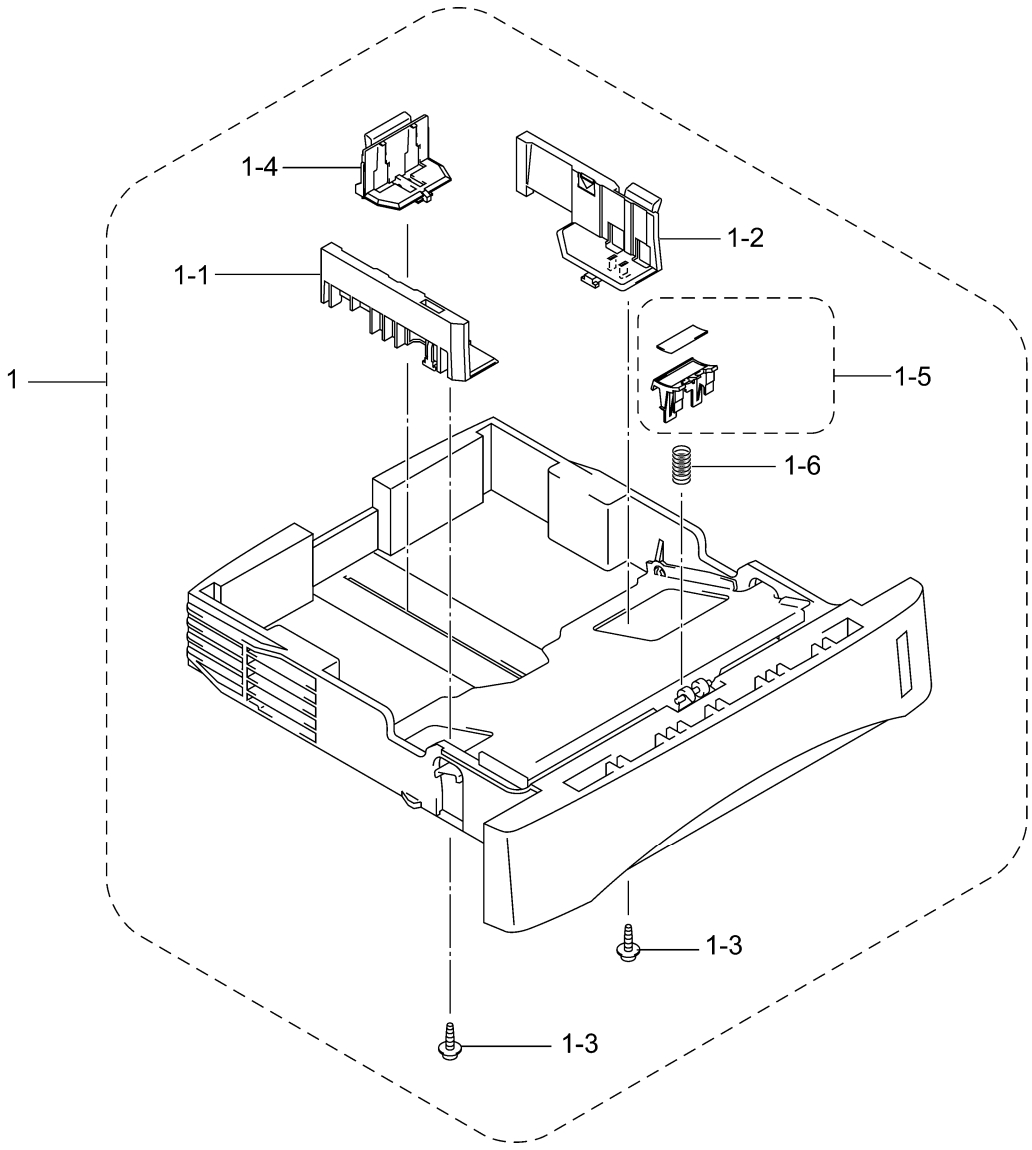

2
2
2
2
1

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LJ4157001	1	LASER UNIT SUPPLY ASSY	
2	087321615	3	TAPTITE, CUP S M3X16	

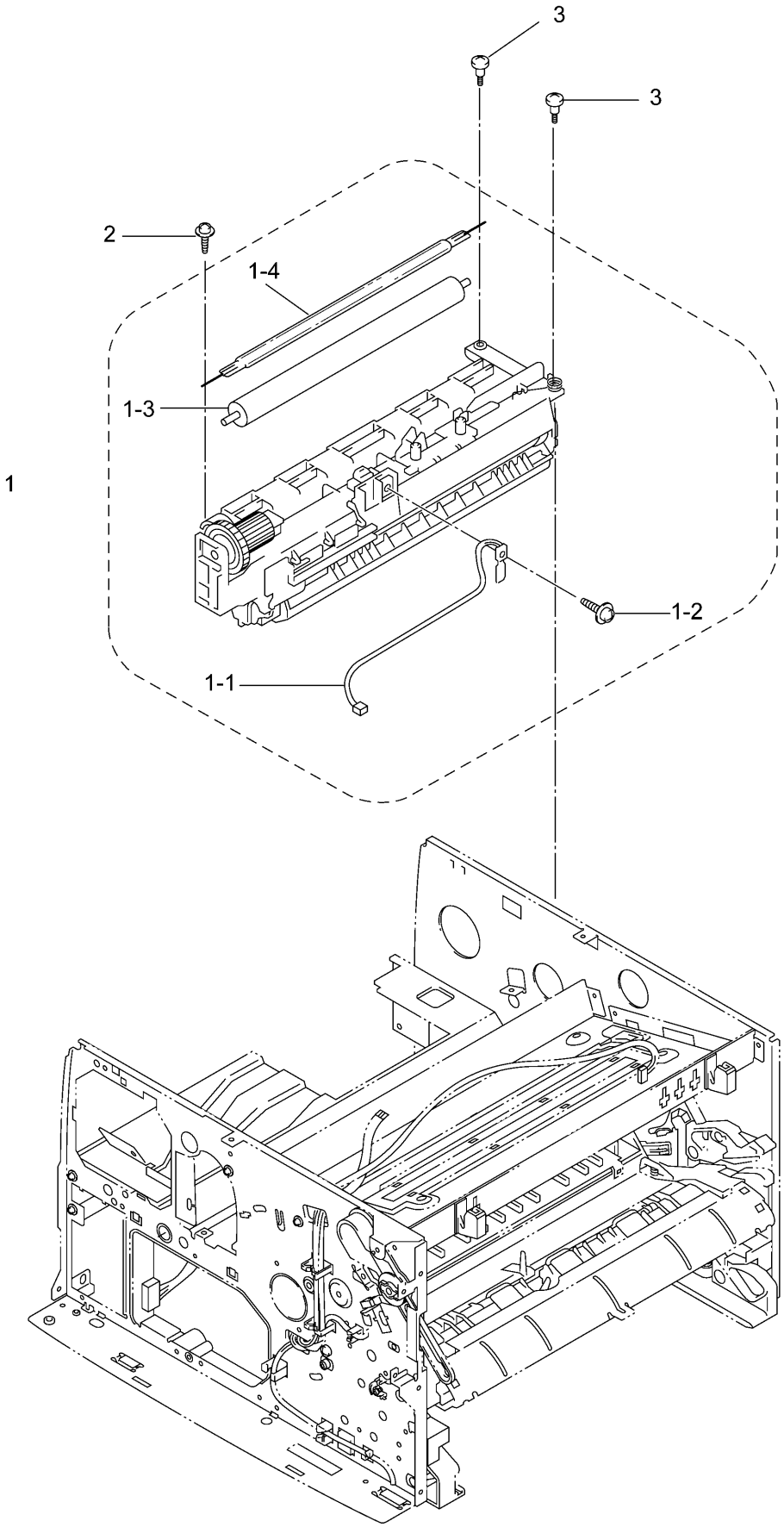

3
2
1
5
4
7
6

To replace part marked with an asterisk(*), you need to confirm if the PAPER CHUTE part is early type or later type. Please refer T/I No.FAX99448 for details.

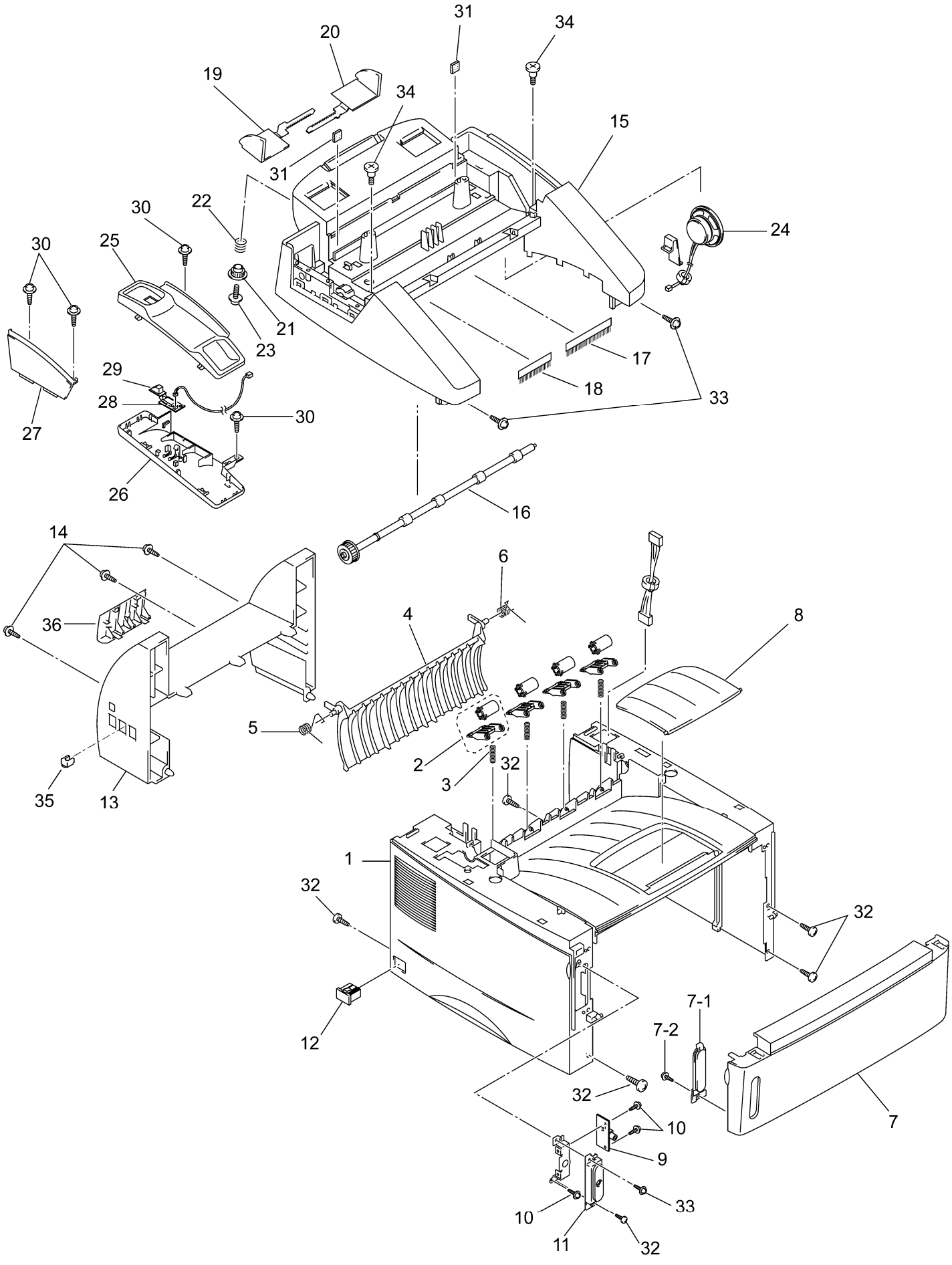
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	UL9059001	1	JOINT	
2	UL9060001	1	PAPER FEED ROLLER ASSY	
3	UL9062001	1	PAWLED BUSHING	
4	UL9066001	1	PAPER PICKUP ROLLER	
5	UL9062001	1	PAWLED BUSHING	
6	UL9069001	1	CONDUCTIVE BUSHING	
*7	UL9071001	1	ELECTRODE SPRING (FOR EARLY LOT)	
*7	LJ4499001	1	ELECTRODE SPRING (FOR LATER LOT)	


1
1-1
1-2
1-3
1-3
1-4
1-5
1-6

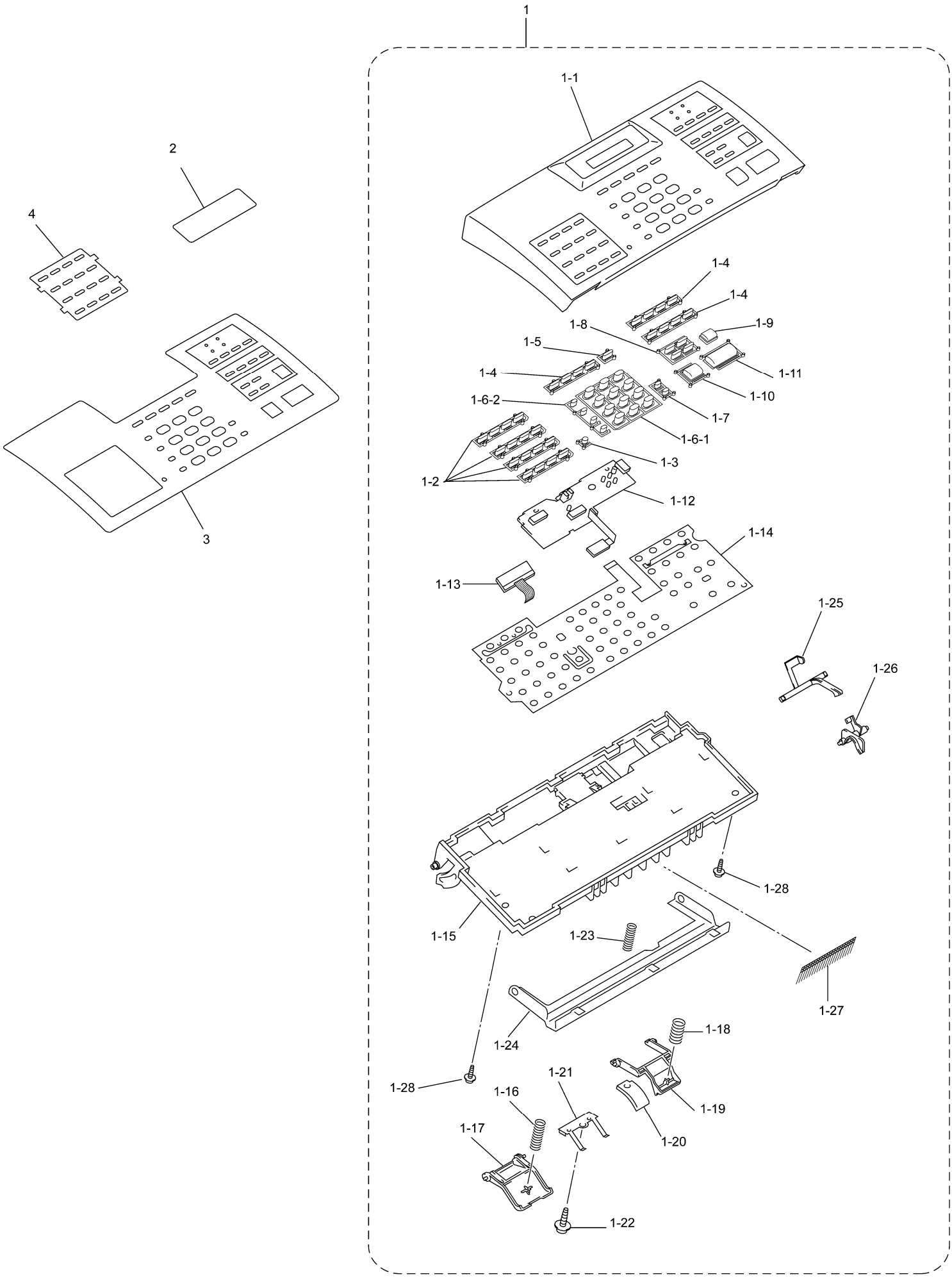
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LJ4181001	1	PAPER CASSETTE, SUPPLY ASSY	
1-1	UL9078001	1	SIDE GUIDE L, GRAY(1496)	
1-2	UL9079001	1	SIDE GUIDE R, GRAY(1496)	
1-3	U73515001	2	SCREW, PAN CUP B M2.6X5	
1-4	UL9083001	1	PAPER REAR GUIDE, GRAY(1496)	
1-5	UL9084001	1	SEPARATION PAD SUPPORT ASSY	
1-6	UL9090001	1	SEPARATION PAD SPRING	


3
3
2
1-4
1-3
1
1-2
1-1

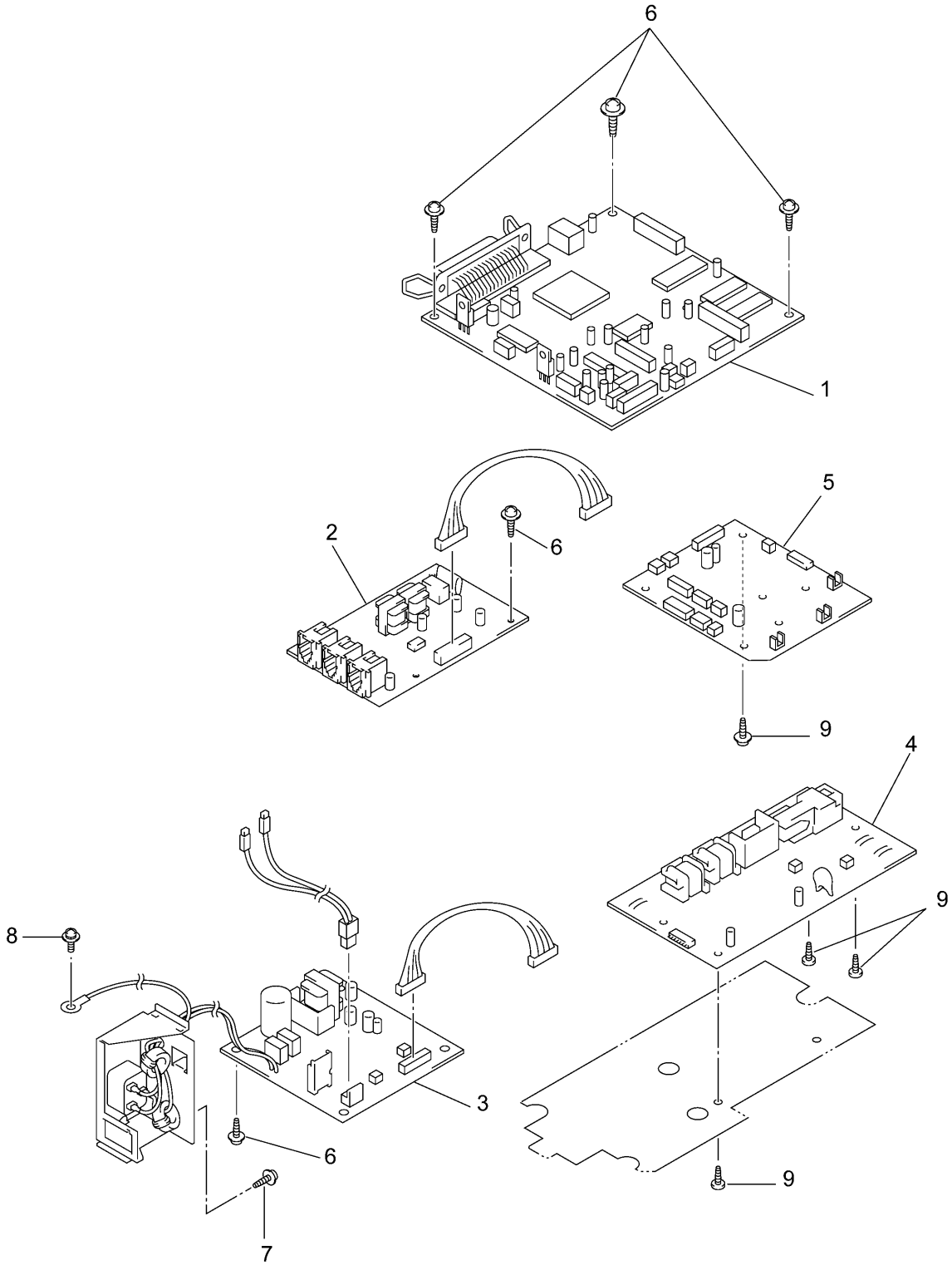
REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LJ4168001	1	HEAT FIXING UNIT, 230V SUPPLY ASSY	
1-1	UL8902001	1	THERMISTOR ASSY	
1-2	087311215	1	TAPTITE, CUP B M3X12	
1-3	LJ4169001	1	HEAT ROLLER SUPPLY ASSY	
1-4	LJ4163001	1	FUSER LAMP, 230V SUPPLY ASSY	
2	087320815	1	TAPTITE, CUP S M3X8	
3	LJ4740001	2	SHOULDER SCREW	


31
34
20
19
34
15
31
22
30
24
25
30
21
23
29
17
18
28
30
33
27
26
16
14
6
36
4
8
5
2
3
32
35
13
1
32
32
12
7-1
7-2
32
7
10
9
33
10
11
32

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LJ4122001	1	MAIN COVER ASSY, GRAY(1495)	
2	UL9122001	4	PINCH ROLLER ASSY	
3	UL9125001	4	PINCH ROLLER SPRING	
4	UL9126001	1	OUTER CHUTE, GRAY(1495)	
5	UL9127001	1	CHUTE SPRING L	
6	UL9128001	1	CHUTE SPRING R	
7	UU2102001	1	FRONT COVER ASSY,	
7-1	UU2094001	1	FRONT SUB COVER, GRAY(1495)	
7-2	087310815	1	TAPTITE, CUP B M3X8	
8	UL9140001	1	PAPER SUB TRAY, GRAY(1495)	
9	-----		NOT USED	
10	-----		NOT USED	
11	-----		NOT USED	
12	UU2045001	1	SWITCH COVER, GRAY(1495)	
13	UU2002001	1	REAR COVER, GRAY(1495)	
14	0A5401006	3	SCREW, PAN (S/P WASHER) M4X10	
15	UU2003001	1	TOP COVER, GRAY(1495)	
16	UL9142001	1	EXIT ROLLER ASSY	
17	LJ4125001	1	ANTI-STATIC BRUSH (LONG)	
18	LE1242001	1	ANTI-STATIC BRUSH (SHORT)	
19	UF6114008	1	DOCUMENT GUIDE, L, GRAY(1495)	
20	UF6115008	1	DOCUMENT GUIDE, R, GRAY(1495)	
21	UF4417000	1	GUIDE GEAR	
22	UF4418001	1	SPRING, COMPRESSION	
23	UF5034001	1	TAPTITE, B 3X6	
24	LG2210001	1	SPEAKER UNIT	
25	-----		NOT USED	
26	-----		NOT USED	
27	LE1023001	1	SIDE COVER	
28	-----		NOT USED	
29	-----		NOT USED	
30	087311016	2	TAPTITE, CUP B M3X10	
31	-----		NOT USED	
32	085320816	6	TAPTITE, BIND S M3X8	
33	087321015	2	TAPTITE, CUP S M3X10	
34	UF9823001	2	SHOULDER SCREW	
35	UF5745000	1	MJ COVER, EXT, FAX8350P/MFC9650/FAX8750P FOR GER/UK/FRA/BEL/NLD/DEN/AUS/ITA/SWE/GNR	
36	UU2093001	1	SUB BACK COVER, FAX8350P/FAX8750P	

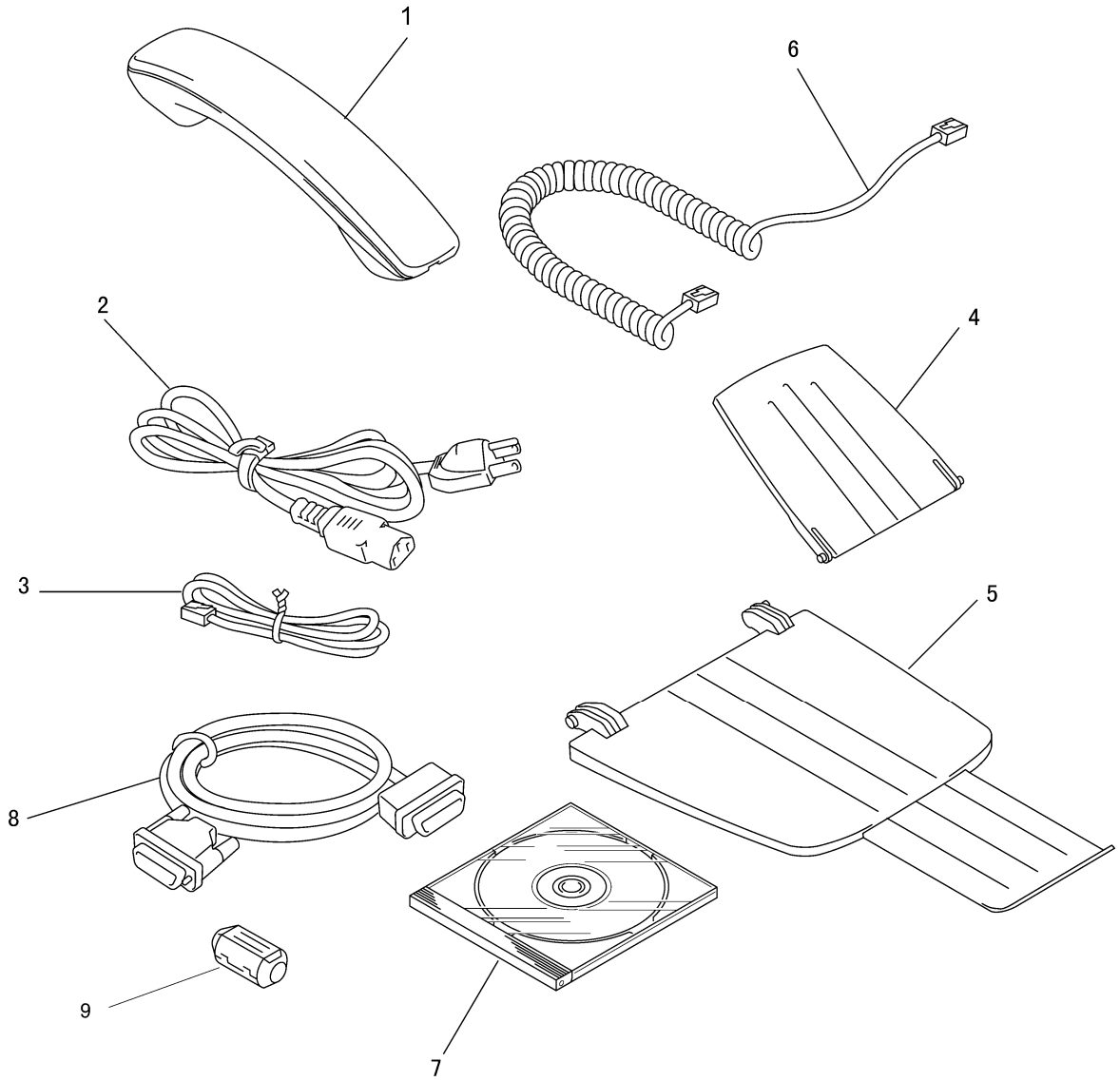

1
1-1
2
4
3
1-4
1-4
1-8
1-9
1-5
1-11
1-4
1-10
1-6-2
1-7
1-6-1
1-3
1-2
1-12
1-14
1-13
1-25
1-26
1-28
1-15
1-23
1-27
1-24
1-18
1-28
1-21
1-16
1-19
1-17
1-20
1-22

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE1158001	1	CONTROL PANEL SUPPLY ASSY, FAX8350P/MFC9650	
1	LE1250001	1	CONTROL PANEL SUPPLY ASSY, FAX8750P	
1-1	UU2004001	1	CONTROL PANEL, GRAY(1495)	
1-2	UF8176008	4	KEY, ONE TOUCH, GRAY(1495)	
1-3	UF4576008	1	KEY, SHIFT, GRAY(1495)	
1-4	UF9118006	2	KEY, FUNCTION4, GRAY(1495)	
1-5	UF5581010	1	KEY, FUNCTION1, GRAY(1495)	
1-6	UF4393007	1	KEY, TEN, GRAY(1495)	
1-7	UU7099008	1	KEY, VOLUME, GRAY(1495)	
1-8	UU7100008	1	KEY, COPY AREA, GRAY(1495)	
1-9	UF8174008	1	KEY, COPY, GRAY(1495)	
1-10	UF8173004	1	KEY, STOP, PINK(2205)	
1-11	UF8172006	1	KEY, SEND, PURPLE(6255)	
1-12	LE1156001	1	CONTROL PANEL PCB SUPPLY ASSY	
1-13	UG4552000	1	LCD	
1-14	LE1155001	1	FPC KEY SUPPLY ASSY	
1-15	UU2005001	1	PANEL REAR COVER	
1-16	UU2051001	1	DOCUMENT NIP SPRING	
1-17	UU2052001	1	DOCUMENT NIP PIECE	
1-18	UU2053001	1	ADF SPRING	
1-19	UU2054001	1	SPRING PLATE B	
1-20	UU2055001	1	SEPARATION RUBBER	
1-21	UU2056001	1	SPRING PLATE A	
1-22	UF5034001	1	TAPTITE, B 3X6	
1-23	UU2057001	1	DOCUMENT PRESSURE SPRING	
1-24	UU2058001	1	DOCUMENT PRESSURE BAR ASSY	
1-25	UU2061001	1	DOCUMENT FRONT SENSOR ACTUATOR	
1-26	UU2062001	1	DOCUMENT REAR SENSOR ACTUATOR	
1-27	LE1071001	1	ANTI-STATIC BRUSH	
1-28	087310815	2	TAPTITE, CUP B M3X8	
2	UU2063001	1	LCD SHEET	
3	LE1029001	1	PANEL SHEET, FAX8350P FOR GER/AUS	
3	LE1033001	1	PANEL SHEET, FAX8350P FOR UK/CHE/IRE	
3	LE1036001	1	PANEL SHEET, FAX8350P FOR FRA	
3	LE1099001	1	PANEL SHEET, FAX8350P FOR NOR	
3	LE1144001	1	PANEL SHEET, FAX8350P FOR BEL	
3	LE1102001	1	PANEL SHEET, FAX8350P FOR HOL	
3	LE1106001	1	PANEL SHEET, FAX8350P FOR DEN	
3	LE1110001	1	PANEL SHEET, FAX8350P FOR SWE	
3	LE1046001	1	PANEL SHEET, MFC9650 FOR GER	
3	LE1053001	1	PANEL SHEET, MFC9650 FOR UK/CHE/GNR	
3	LE1114001	1	PANEL SHEET, MFC9650 FOR NOR	
3	LE1117001	1	PANEL SHEET, MFC9650 FOR BEL	
3	LE1120001	1	PANEL SHEET, MFC9650 FOR NLD	
3	LE1124001	1	PANEL SHEET, MFC9650 FOR DEN	
3	LE1127001	1	PANEL SHEET, MFC9650 FOR SPA	
3	LE1130001	1	PANEL SHEET, MFC9650 FOR ITA	
3	LE1133001	1	PANEL SHEET, MFC9650 FOR SWE	
3	LE1347001	1	PANEL SHEET, FAX8750P FOR GER	
3	LE1353001	1	PANEL SHEET, FAX8750P FOR UK/CHE	
3	LE1354001	1	PANEL SHEET, FAX8750P FOR NOR	
3	LE1357001	1	PANEL SHEET, FAX8750P FOR BEL	
3	LE1359001	1	PANEL SHEET, FAX8750P FOR NLD	
3	LE1361001	1	PANEL SHEET, FAX8750P FOR ITA	
3	LE1363001	1	PANEL SHEET, FAX8750P FOR SWE	
4	UU2067001	1	ADDRESS LABEL	


6
1
2
6
5
9
4
9
8
3
6
7
9

To replace part marked with an asterisk(*), you need to confirm if the PAPER CHUTE part is early type or later type. Please refer T/I No.FAX99448 for details.

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	LE1261001	1	MAIN PCB SUPPLY ASSY, FAX8350P	
1	LE1265001	1	MAIN PCB SUPPLY ASSY, MFC9650	
1	LG2422001	1	MAIN PCB SUPPLY ASSY, FAX8750P	
2	LE1264001	1	NCU PCB SUPPLY ASSY, FAX8350P/MFC9650	
2	LE1264051	1	NCU PCB SUPPLY ASSY, FAX8750P	
3	LJ4175001	1	LOW VOLTAGE POWER SUPPLY PCB, 230V	
*4	LJ4176001	1	HIGH VOLTAGE POWER SUPPLY PCB, SUPPLY ASSY (FOR EARLY LOT)	
*4	LJ8156001	1	HIGH VOLTAGE POWER SUPPLY PCB, SUPPLY ASSY (FOR LATER LOT)	
*5	LE1163001	1	ENGINE PCB SUPPLY ASSY (FOR EARLY LOT)	
*5	LE1506001	1	ENGINE PCB SUPPLY ASSY (FOR LATER LOT)	
6	087320616	5	TAPTITE, CUP S M3X6	
7	084320815	1	SCREW, FLAT S M3X8	
8	0A5350606	1	SCREW, PAN (WASHER) M3.5X6	
9	085411215	4	SCREW, BIND B TITE M4X12	


1
6
2
4
3
5
8
9
7

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
1	-----		NOT USED	
2	LG2358001	1	AC CORD BAG ASSY, FAX8350P/MFC9650/FAX8750P	
			FOR GER/FRA/NOR/BEL/NLD/AUS/SPA/ITA/SWE/GNR	
2	LG2359001	1	AC CORD BAG ASSY, FAX8350P/MFC9650/FAX8750P FOR UK/IRE	
2	LG2360001	1	AC CORD BAG ASSY, FAX8350P/MFC9650/FAX8750P FOR CHE	
2	LG2361001	1	AC CORD BAG ASSY, FAX8350P/MFC9650 FOR DEN	
3	UG3625001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR GER	
3	UG3626001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR UK	
3	UG3627001	1	TELEPHONE LINE CORD, FAX8350P/FAX8750P FOR FRA	
3	UG3629001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR NOR	
3	UG1575001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR BEL	
3	UG3631001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR NLD	
3	UG3469000	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR CHE	
3	UG3565001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650 FOR IRE/SPA/GNR	
3	UG3633001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650 FOR DEN	
3	UG4205001	1	TELEPHONE LINE CORD, FAX8350P FOR AUT	
3	UG3635001	1	TELEPHONE LINE CORD, FAX8350P/MFC9650/FAX8750P FOR SWE	
3	UG3634001	1	TELEPHONE LINE CORD, MFC9650/FAX8750P FOR ITA	
4	UU2069001	1	DOCUMENT SUPPORT	
5	UU2080001	1	DOCUMENT TRAY	
6	-----		NOT USED	
7	LE1047001	1	CD-ROM ASSY, MFC9650	
7	LE1348001	1	CD-ROM ASSY, FAX8750P	
8	UG4558001	1	I/F CABLE, MFC9650 FOR GER/UK	
9	LE0019001	1	FERRITE CORE BAG ASSY, MFC9650	
			FOR NOR/BEL/NLD/CHE/DEN/SPA/ITA/SWE/GNR, FAX8750P	

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
(1)	LE1030001	1	OWNER'S MANUAL ASSY, FAX8350P FOR GER/AUS (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1034001	1	OWNER'S MANUAL ASSY, FAX8350P FOR UK (INCLUDING OPERATIONS MANUAL(1-1) AND 3WARRANTY CARDS)	
(1)	LE1037001	1	OWNER'S MANUAL ASSY, FAX8350P FOR FRA (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1100001	1	OWNER'S MANUAL ASSY, FAX8350P FOR NOR (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1145001	1	OWNER'S MANUAL ASSY, FAX8350P FOR BEL (INCLUDING 2 OPERATIONS MANUALS(1-1) AND WARRANTY CARD)	
(1)	LE1103001	1	OWNER'S MANUAL ASSY, FAX8350P FOR NLD (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1038001	1	OWNER'S MANUAL ASSY, FAX8350P FOR CHE (INCLUDING 2 OPERATIONS MANUALS(1-1) AND WARRANTY CARD)	
(1)	LE1104001	1	OWNER'S MANUAL ASSY, FAX8350P FOR IRE (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1107001	1	OWNER'S MANUAL ASSY, FAX8350P FOR DEN (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1111001	1	OWNER'S MANUAL ASSY, FAX8350P FOR SWE (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1351001	1	OWNER'S MANUAL ASSY, FAX8750P FOR GNR (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1034001	1	OWNER'S MANUAL ASSY, FAX8750P FOR UK (INCLUDING OPERATIONS MANUAL(1-1) AND 3WARRANTY CARDS)	
(1)	LE1037001	1	OWNER'S MANUAL ASSY, FAX8750P FOR FRA (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1100001	1	OWNER'S MANUAL ASSY, FAX8750P FOR NOR (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1145001	1	OWNER'S MANUAL ASSY, FAX8750P FOR BEL (INCLUDING 2 OPERATIONS MANUALS(1-1) AND WARRANTY CARD)	
(1)	LE1103001	1	OWNER'S MANUAL ASSY, FAX8750P FOR NLD (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1038001	1	OWNER'S MANUAL ASSY, FAX8750P FOR CHE (INCLUDING 2 OPERATIONS MANUALS(1-1) AND WARRANTY CARD)	
(1)	LE1362001	1	OWNER'S MANUAL ASSY, FAX8750P FOR ITA (INCLUDING OPERATIONS MANUAL(1-1) AND WARRANTY CARD)	
(1)	LE1111001	1	OWNER'S MANUAL ASSY, FAX8750P FOR GNR (INCLUDING OPERATIONS MANUAL(1-1) AND 2WARRANTY CARDS)	
(1)	LE1050001	1	OWNER'S MANUAL ASSY, MFC9650 FOR GER (INCLUDING OPERATIONS MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE1054001	1	OWNER'S MANUAL ASSY, MFC9650 FOR UK (INCLUDING OPERATIONS MANUAL(1-1), 3 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE1115001	1	OWNER'S MANUAL ASSY, MFC9650 FOR NOR (INCLUDING OPERATIONS MANUAL(1-1), 2 WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE1118001	1	OWNER'S MANUAL ASSY, MFC9650 FOR BEL (INCLUDING 2 OPERATIONS MANUALS(1-1), WARRANTY CARDS AND MFL MANUAL(1-2))	
(1)	LE1121001	1	OWNER'S MANUAL ASSY, MFC9650 FOR NLD (INCLUDING OPERATIONS MANUAL(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE1055001	1	OWNER'S MANUAL ASSY, MFC9650 FOR CHE (INCLUDING 2 OPERATIONS MANUALS(1-1), WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE1125001	1	OWNER'S MANUAL ASSY, MFC9650 FOR DEN (INCLUDING OPERATIONS MANUAL(1-1) WARRANTY CARD AND MFL MANUAL(1-2))	
(1)	LE1128001	1	OWNER'S MANUAL ASSY, MFC9650 FOR SPA	

REF.NO.	CODE	Q'TY	DESCRIPTION	REMARKS
(1)	LE1026001	1	CARTON, FAX8350P	
(1)	LE1042001	1	CARTON, MFC9650	
(1)	LE1343001	1	CARTON, FAX8750P	
(2)	LE1292001	1	STYROFOAM ASSY	
(3)	UE1688001	1	POLY-ETHYLENE BAG FOR MACHINE, 1000X1000	
(4)	UE3122001	1	CARTON FOR MANUAL	
(5)	UU0456001	1	PROTECTION PAPER	
(6)	LJ4546001	1	BAG FOR DRUM/TONER, 400X480	

PL8X5481
VER B